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Fig. -1

TRAFFIC COMPLEX

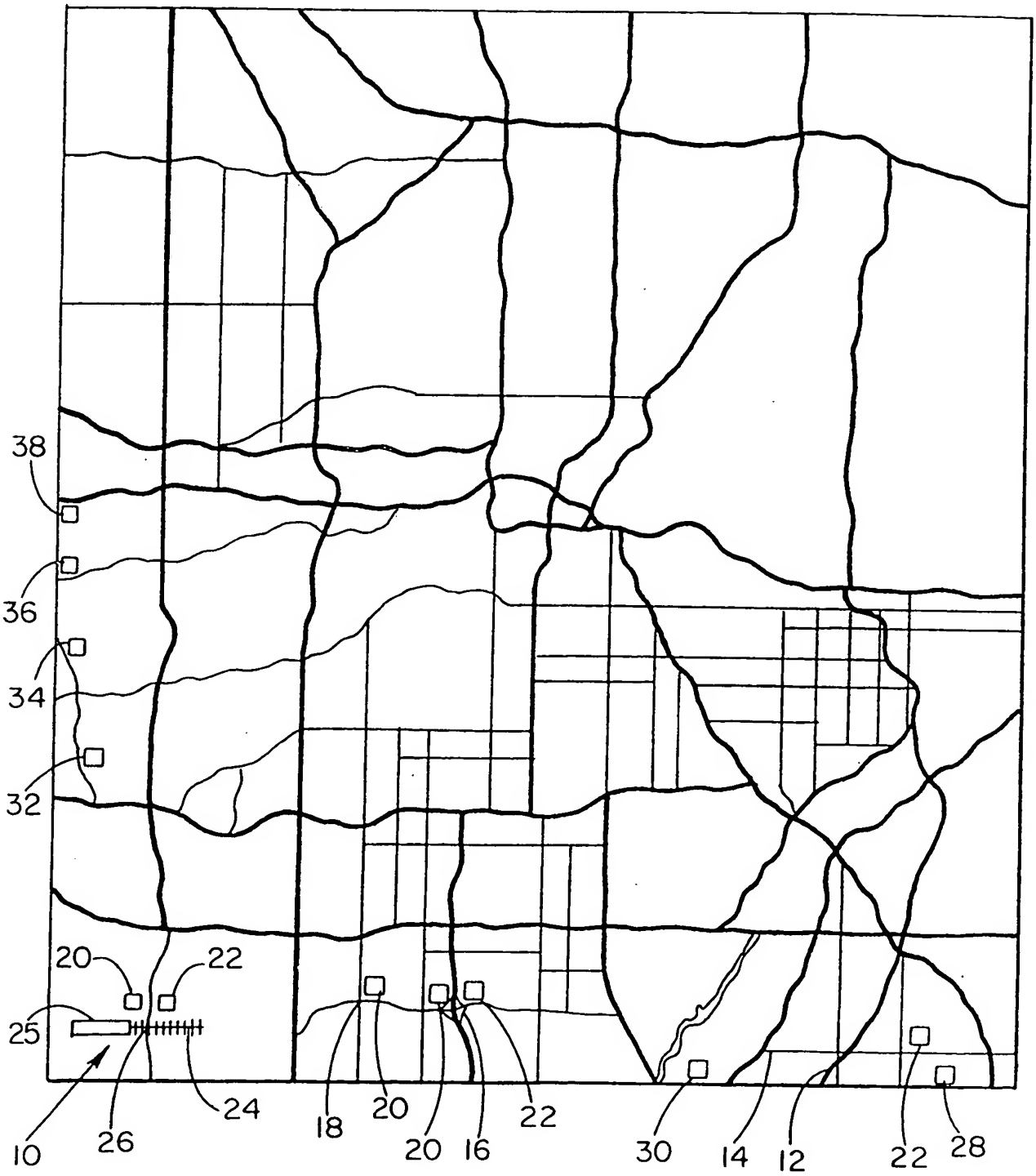


Fig.-2

COMMUNICATION IN TRAFFIC COMPLEX

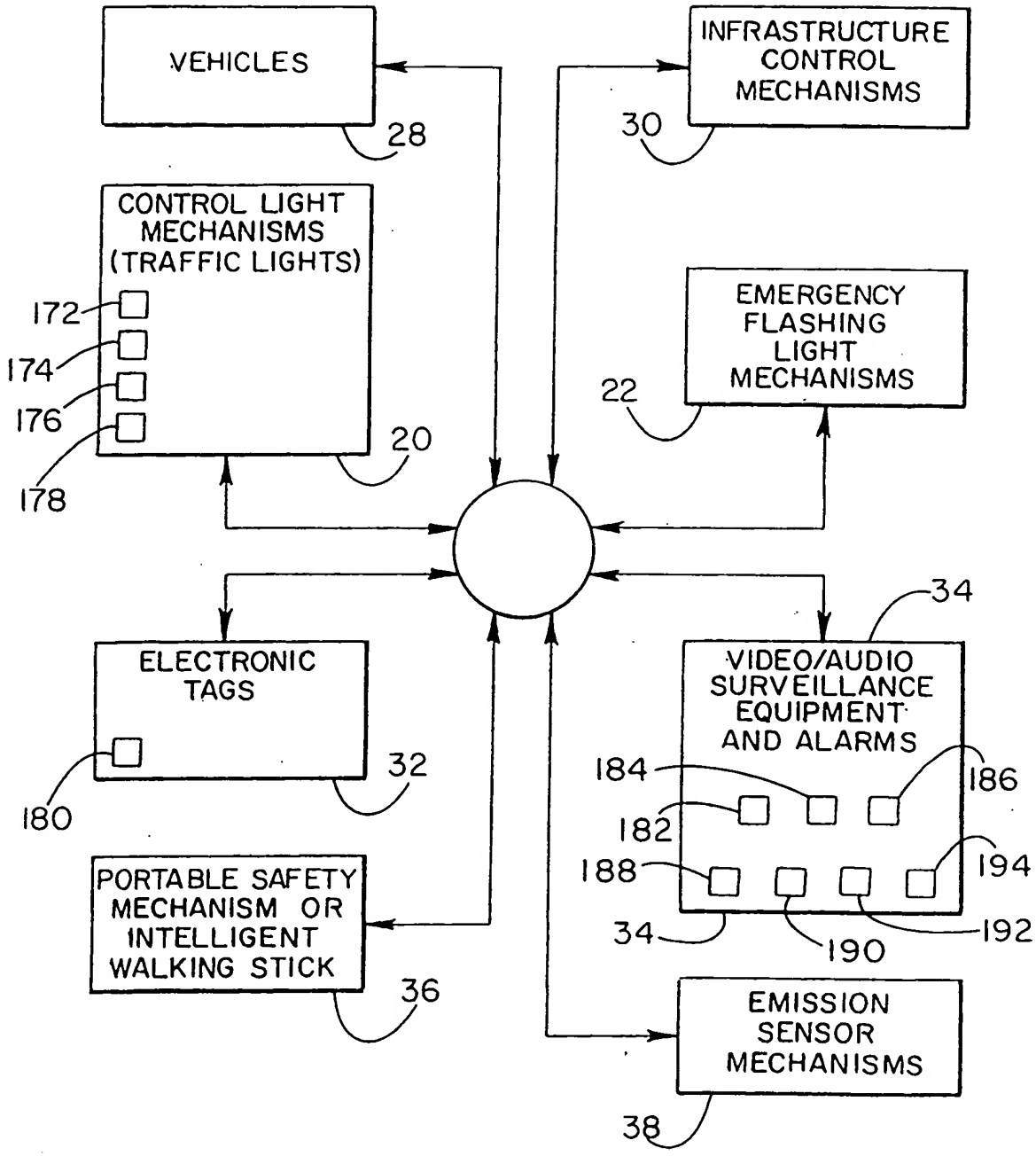


Fig.-3A

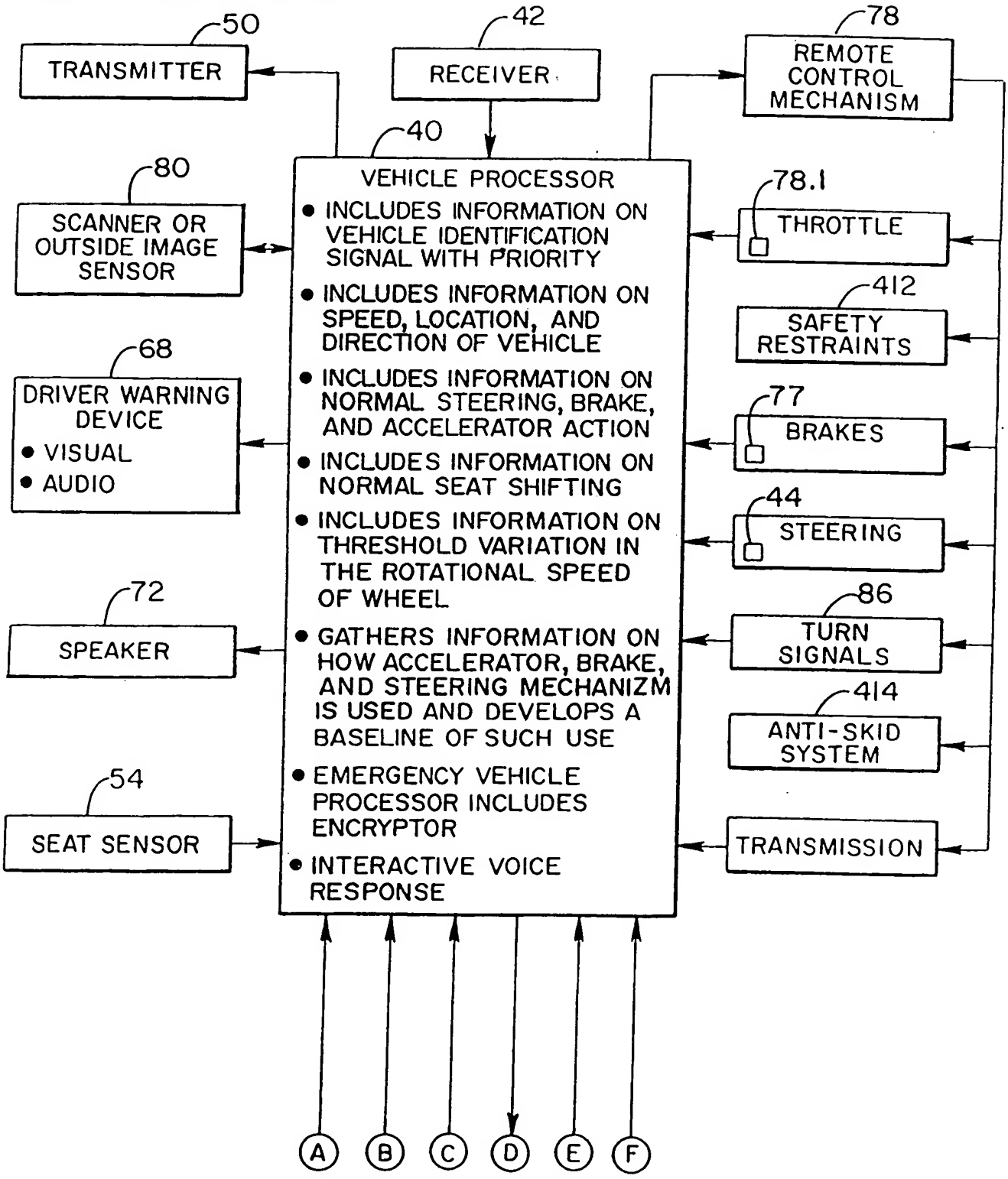

VEHICLE
(AUTOMOBILE, TRUCK, BUS, EMERGENCY VEHICLE, RIGHT-OF-WAY VEHICLES)
50
TRANSMITTER
42
RECEIVER
78
REMOTE CONTROL MECHANISM
40
VEHICLE PROCESSOR
• INCLUDES INFORMATION ON VEHICLE IDENTIFICATION SIGNAL WITH PRIORITY
• INCLUDES INFORMATION ON SPEED, LOCATION, AND DIRECTION OF VEHICLE
• INCLUDES INFORMATION ON NORMAL STEERING, BRAKE, AND ACCELERATOR ACTION
• INCLUDES INFORMATION ON NORMAL SEAT SHIFTING
• INCLUDES INFORMATION ON THRESHOLD VARIATION IN THE ROTATIONAL SPEED OF WHEEL
• GATHERS INFORMATION ON HOW ACCELERATOR, BRAKE, AND STEERING MECHANIZM IS USED AND DEVELOPS A BASELINE OF SUCH USE
• EMERGENCY VEHICLE PROCESSOR INCLUDES ENCRYPTOR
• INTERACTIVE VOICE RESPONSE
80
SCANNER OR OUTSIDE IMAGE SENSOR
68
DRIVER WARNING DEVICE
• VISUAL
• AUDIO
72
SPEAKER
54
SEAT SENSOR
78.1
THROTTLE
412
SAFETY RESTRAINTS
77
BRAKES
44
STEERING
86
TURN SIGNALS
414
ANTI-SKID SYSTEM
TRANSMISSION
A
B
C
D
E
F

Fig.-3B

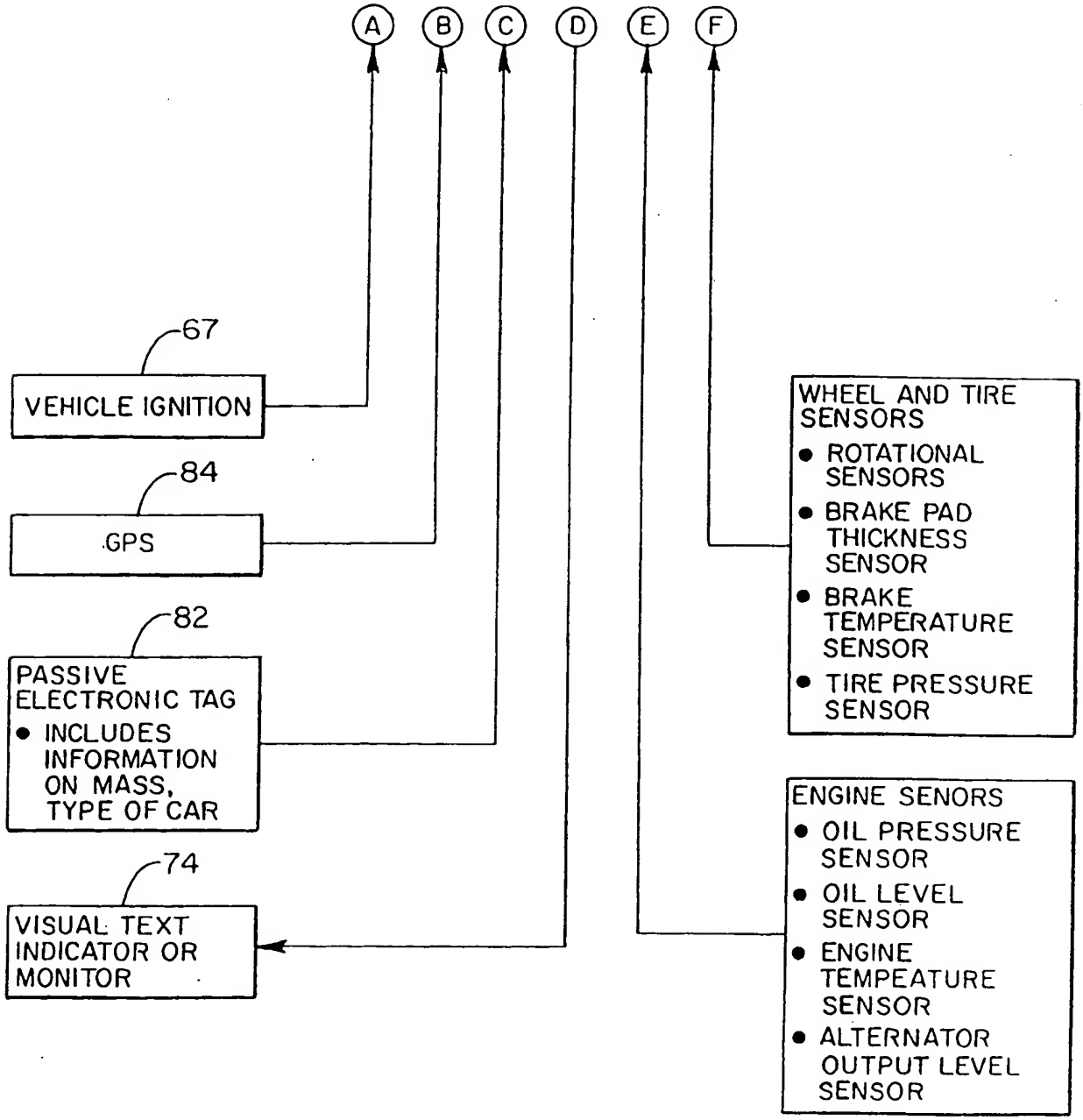

A
B
C
D
E
F
67
VEHICLE IGNITION
84
GPS
82
PASSIVE ELECTRONIC TAG
• INCLUDES INFORMATION ON MASS, TYPE OF CAR
74
VISUAL TEXT INDICATOR OR MONITOR
WHEEL AND TIRE SENSORS
• ROTATIONAL SENSORS
• BRAKE PAD THICKNESS SENSOR
• BRAKE TEMPERATURE SENSOR
• TIRE PRESSURE SENSOR
ENGINE SENORS
• OIL PRESSURE SENSOR
• OIL LEVEL SENSOR
• ENGINE TEMPEATURE SENSOR
• ALTERNATOR OUTPUT LEVEL SENSOR

Fig.-4

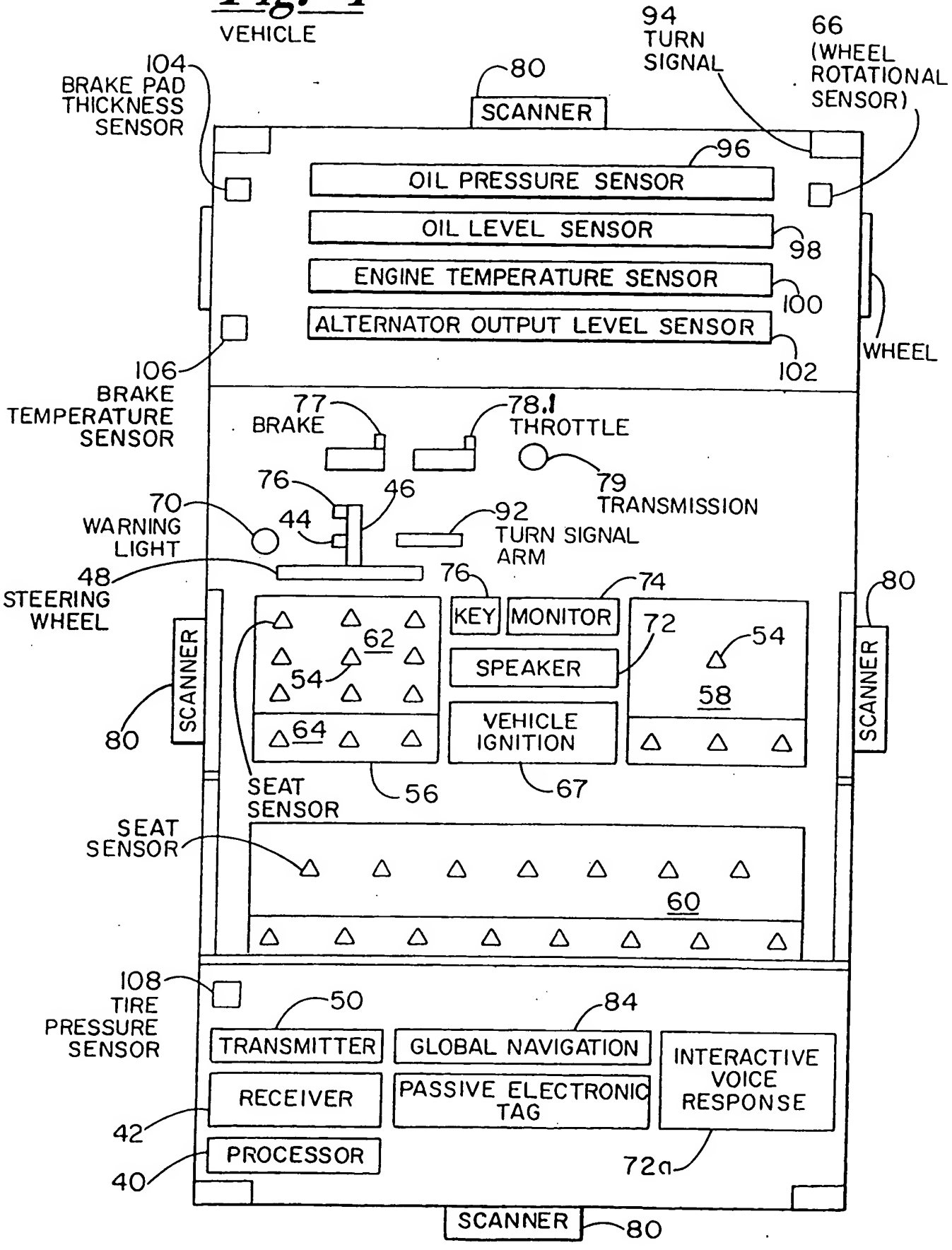

VEHICLE
104
BRAKE PAD THICKNESS SENSOR
80
SCANNER
94
TURN SIGNAL
66
(WHEEL ROTATIONAL SENSOR)
96
OIL PRESSURE SENSOR
OIL LEVEL SENSOR
98
ENGINE TEMPERATURE SENSOR
100
ALTERNATOR OUTPUT LEVEL SENSOR
102
WHEEL
106
BRAKE TEMPERATURE SENSOR
77
BRAKE
78.1
THROTTLE
79
TRANSMISSION
76
46
44
70
WARNING LIGHT
92
TURN SIGNAL ARM
48
STEERING WHEEL
76
74
80
KEY
MONITOR
72
54
62
54
SPEAKER
58
SCANNER
80
64
VEHICLE IGNITION
SCANNER
SEAT SENSOR
56
67
SEAT SENSOR
60
108
TIRE PRESSURE SENSOR
50
84
TRANSMITTER
GLOBAL NAVIGATION
INTERACTIVE VOICE RESPONSE
RECEIVER
PASSIVE ELECTRONIC TAG
42
PROCESSOR
72a
40
SCANNER
80

Fig.-5A

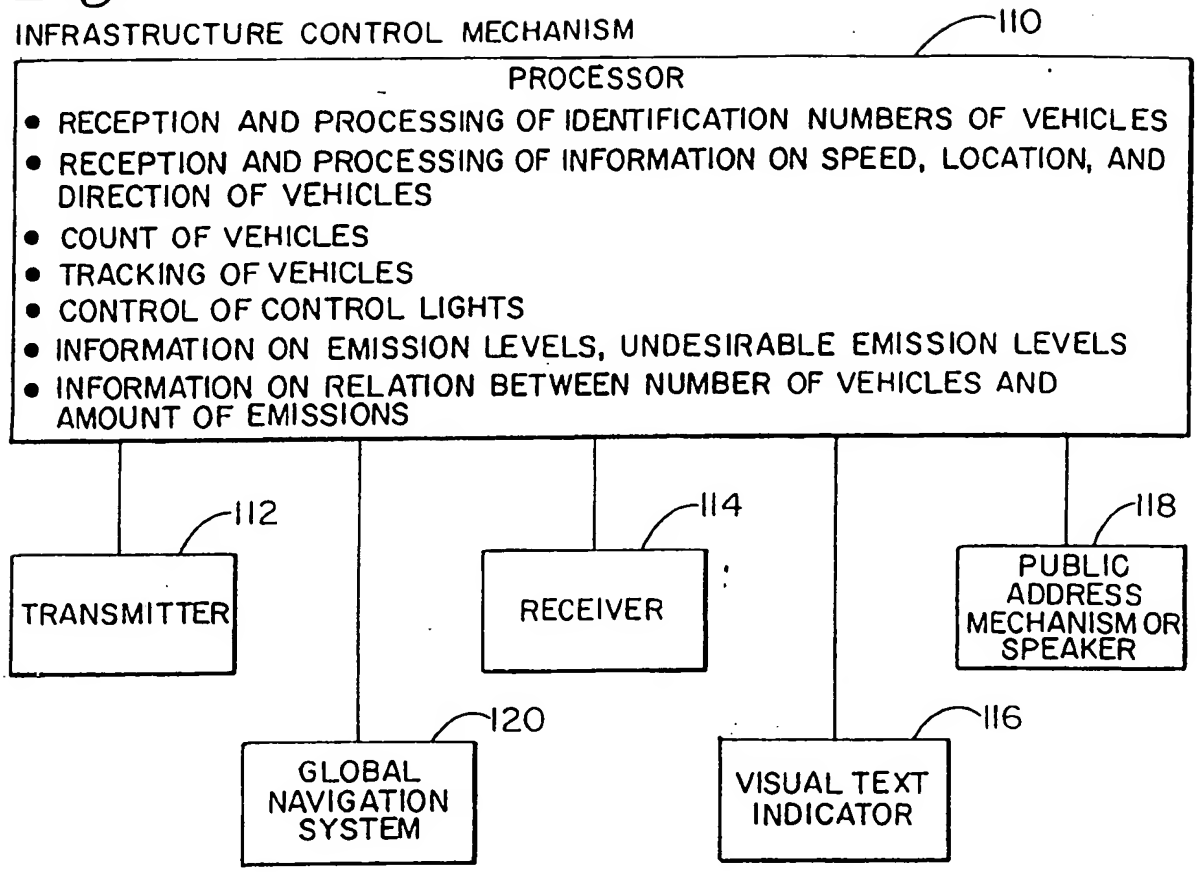

INFRASTRUCTURE CONTROL MECHANISM
110
PROCESSOR
• RECEPTION AND PROCESSING OF IDENTIFICATION NUMBERS OF VEHICLES
• RECEPTION AND PROCESSING OF INFORMATION ON SPEED, LOCATION, AND DIRECTION OF VEHICLES
• COUNT OF VEHICLES
• TRACKING OF VEHICLES
• CONTROL OF CONTROL LIGHTS
• INFORMATION ON EMISSION LEVELS, UNDESIRABLE EMISSION LEVELS
• INFORMATION ON RELATION BETWEEN NUMBER OF VEHICLES AND AMOUNT OF EMISSIONS
112
TRANSMITTER
114
RECEIVER
118
PUBLIC ADDRESS MECHANISM OR SPEAKER
120
GLOBAL NAVIGATION SYSTEM
116
VISUAL TEXT INDICATOR

Fig.-5B

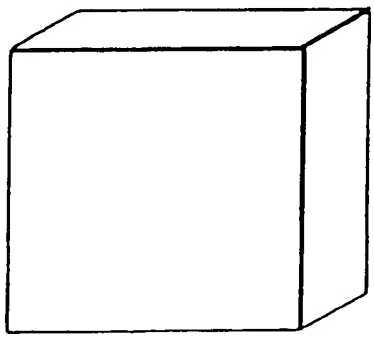


Fig.-6A

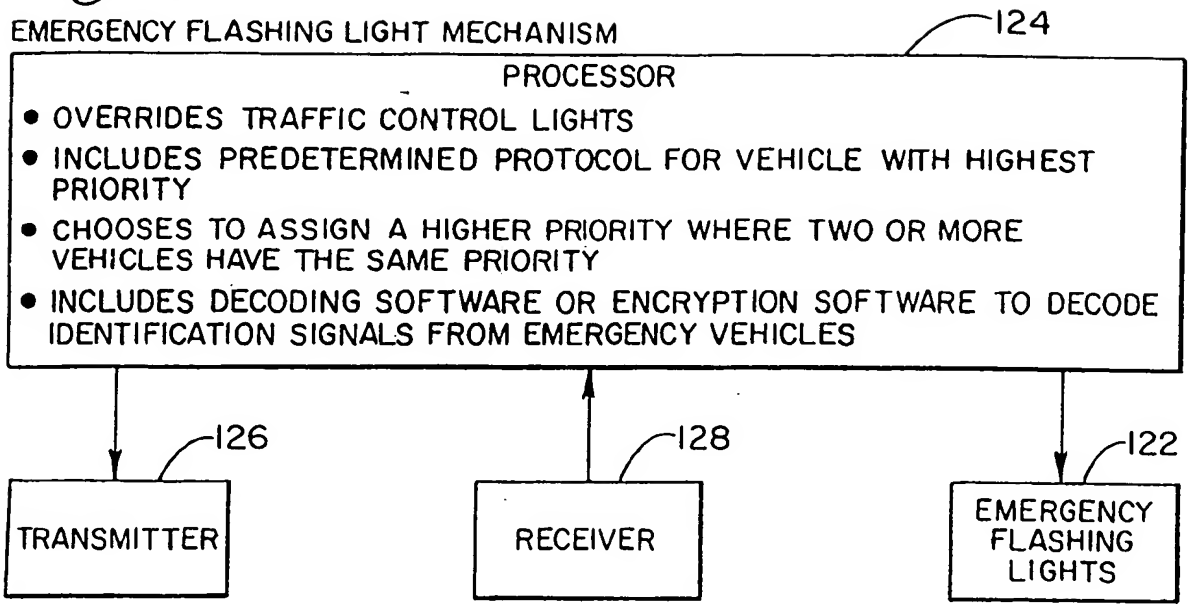

EMERGENCY FLASHING LIGHT MECHANISM
124
PROCESSOR
• OVERRIDES TRAFFIC CONTROL LIGHTS
• INCLUDES PREDETERMINED PROTOCOL FOR VEHICLE WITH HIGHEST PRIORITY
• CHOOSES TO ASSIGN A HIGHER PRIORITY WHERE TWO OR MORE VEHICLES HAVE THE SAME PRIORITY
• INCLUDES DECODING SOFTWARE OR ENCRYPTION SOFTWARE TO DECODE IDENTIFICATION SIGNALS FROM EMERGENCY VEHICLES
126
128
122
TRANSMITTER
RECEIVER
EMERGENCY FLASHING LIGHTS

Fig.-6B

122
122

Fig.-7A

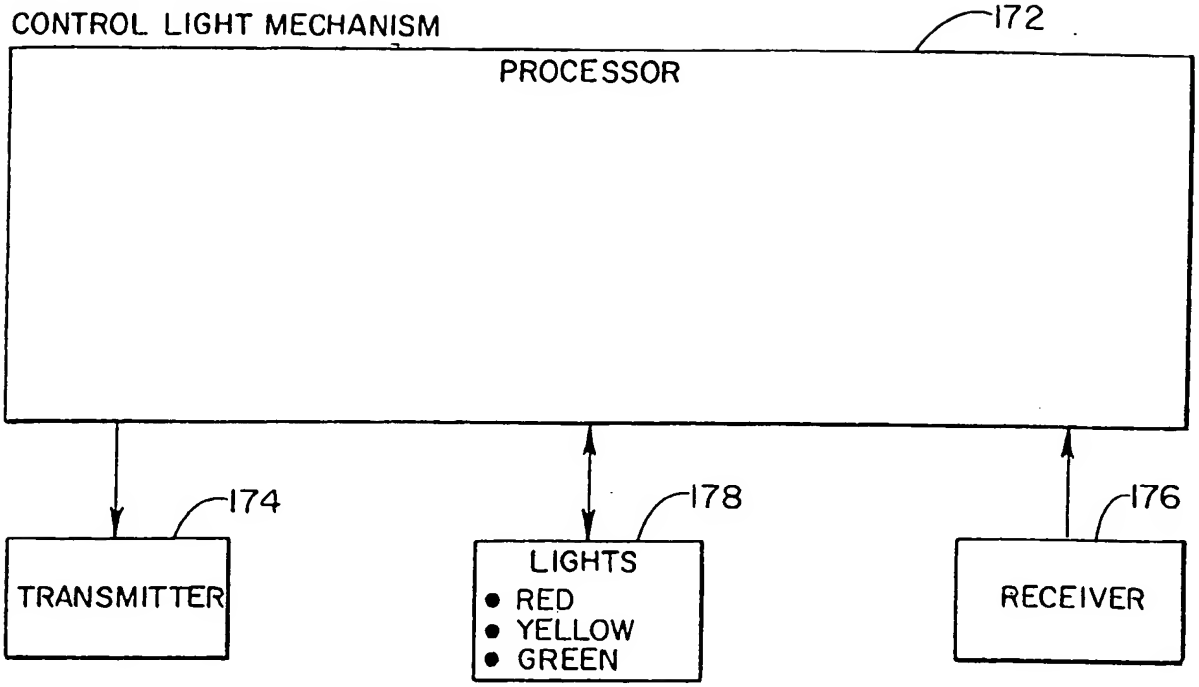

CONTROL LIGHT MECHANISM
172
PROCESSOR
174
TRANSMITTER
178
LIGHTS
• RED
• YELLOW
• GREEN
176
RECEIVER

Fig.-7B

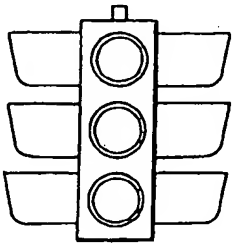


Fig.-8A

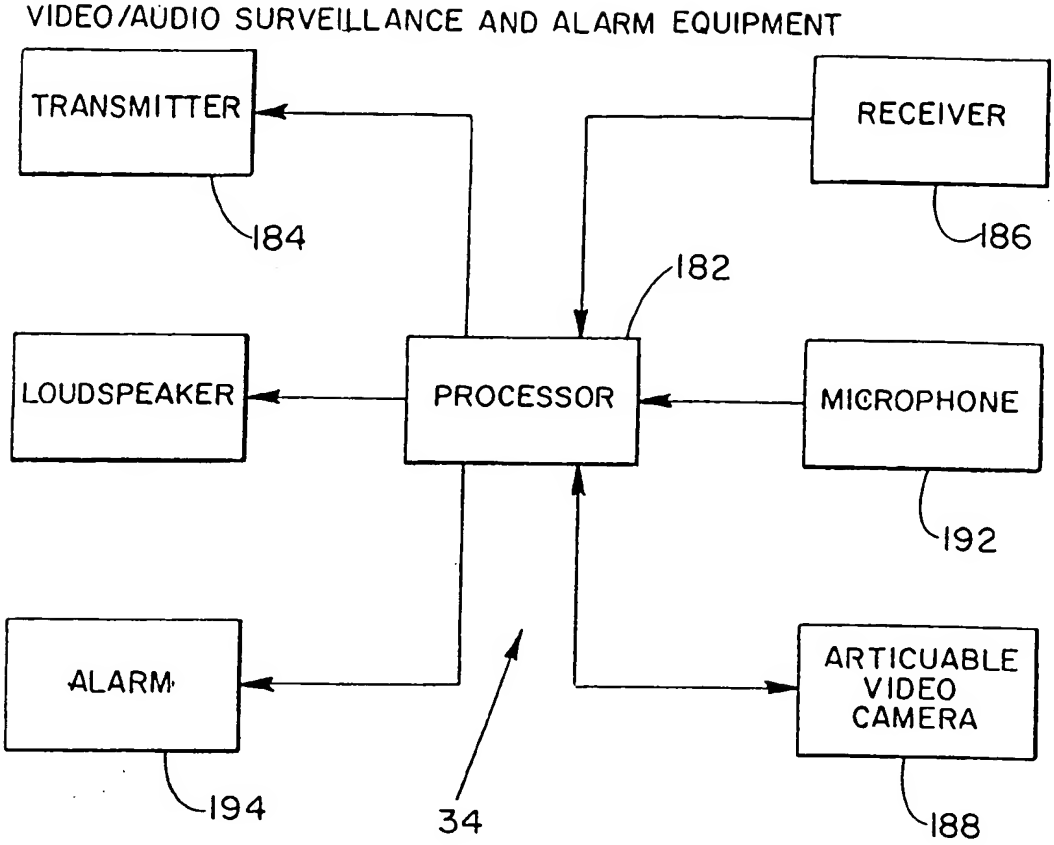

VIDEO/AUDIO SURVEILLANCE AND ALARM EQUIPMENT
TRANSMITTER
184
RECEIVER
186
182
LOUDSPEAKER
PROCESSOR
MICROPHONE
192
ALARM
194
34
ARTICUABLE VIDEO CAMERA
188

Fig.-8B

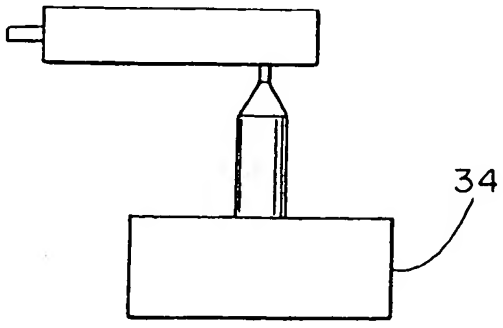

34

Fig.-9A

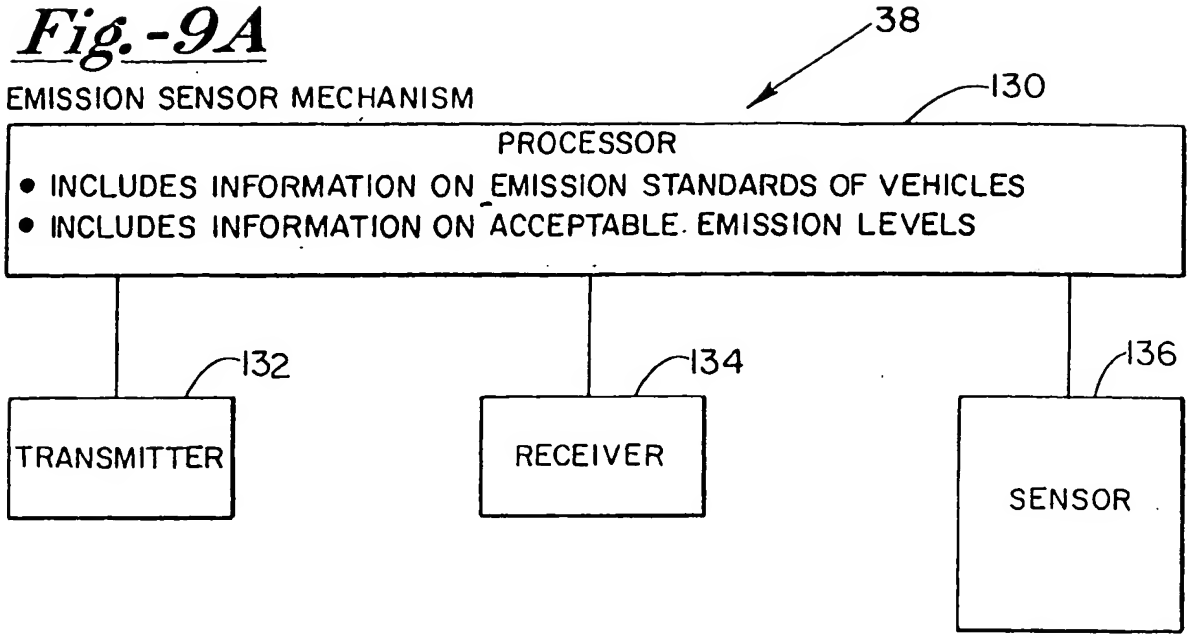

38
EMISSION SENSOR MECHANISM
130
PROCESSOR
• INCLUDES INFORMATION ON EMISSION STANDARDS OF VEHICLES
• INCLUDES INFORMATION ON ACCEPTABLE EMISSION LEVELS
132
134
136
TRANSMITTER
RECEIVER
SENSOR

Fig.-9B

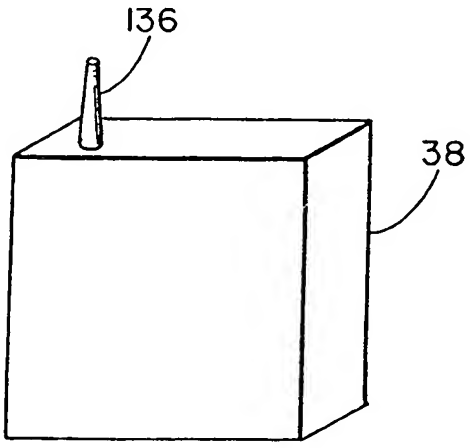

136
38

Fig.-10A

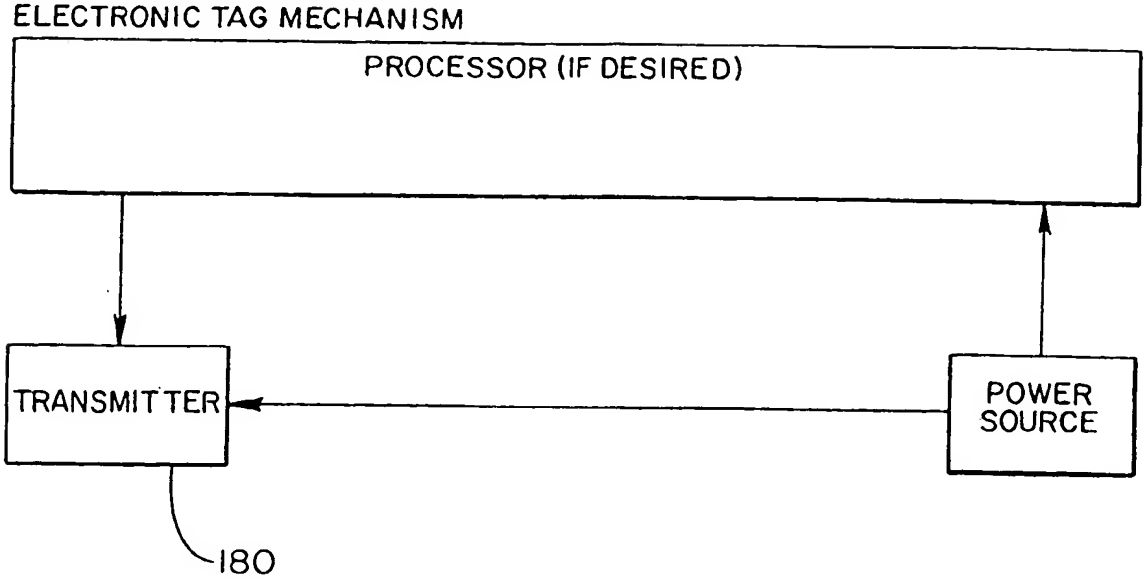


Fig.-10B

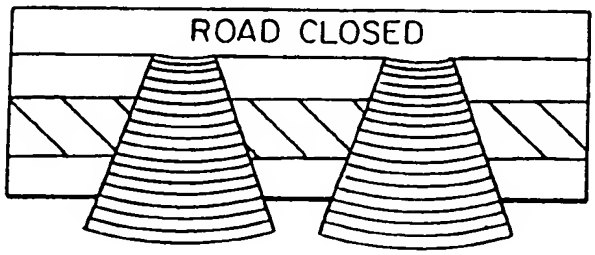


Fig.-11A

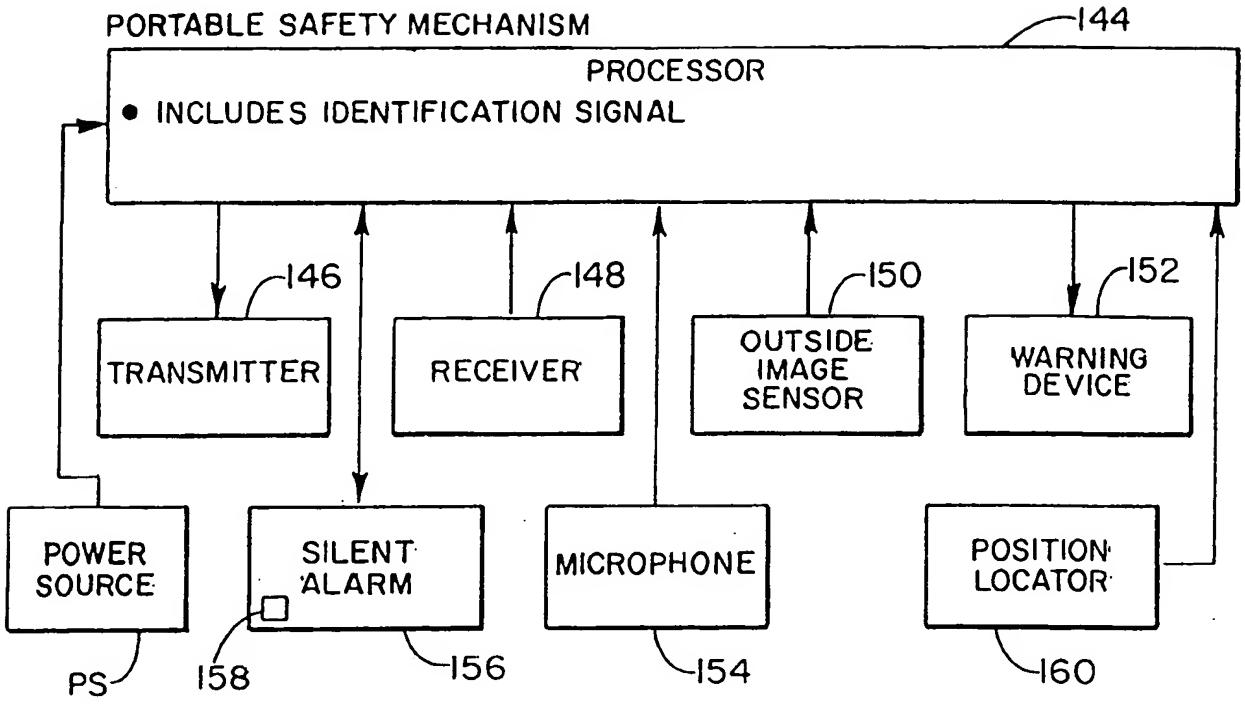


Fig.-11B

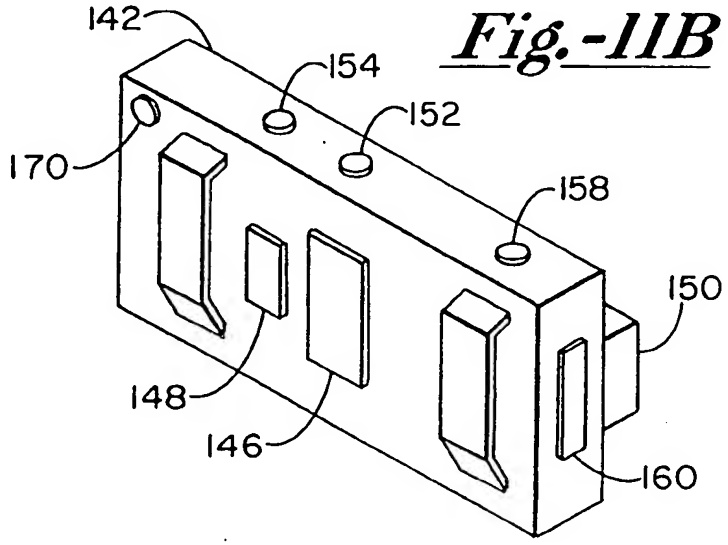


Fig.-12B

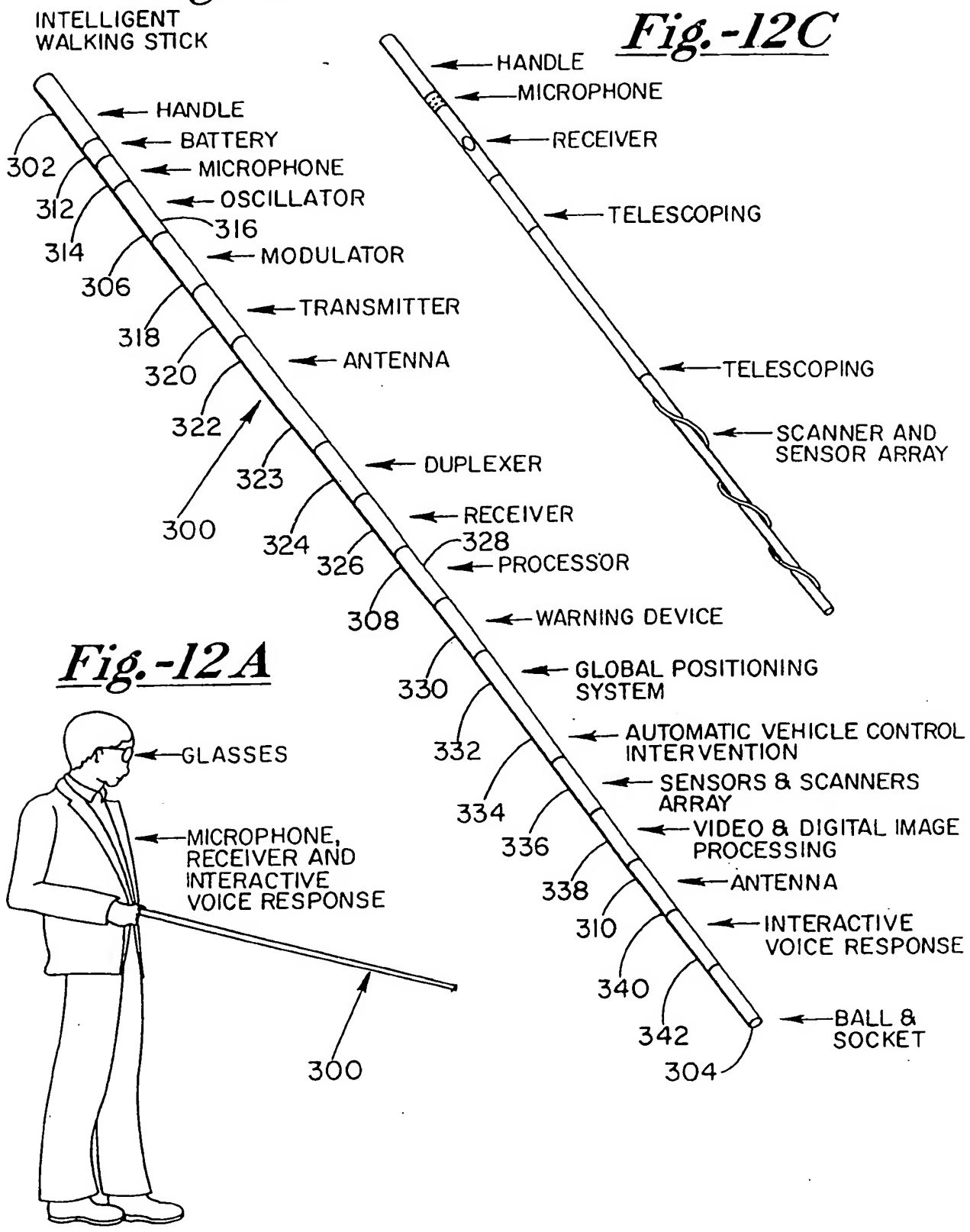


Fig.-12C

Fig.-12A

Fig.-13

COMMUNICATIONS

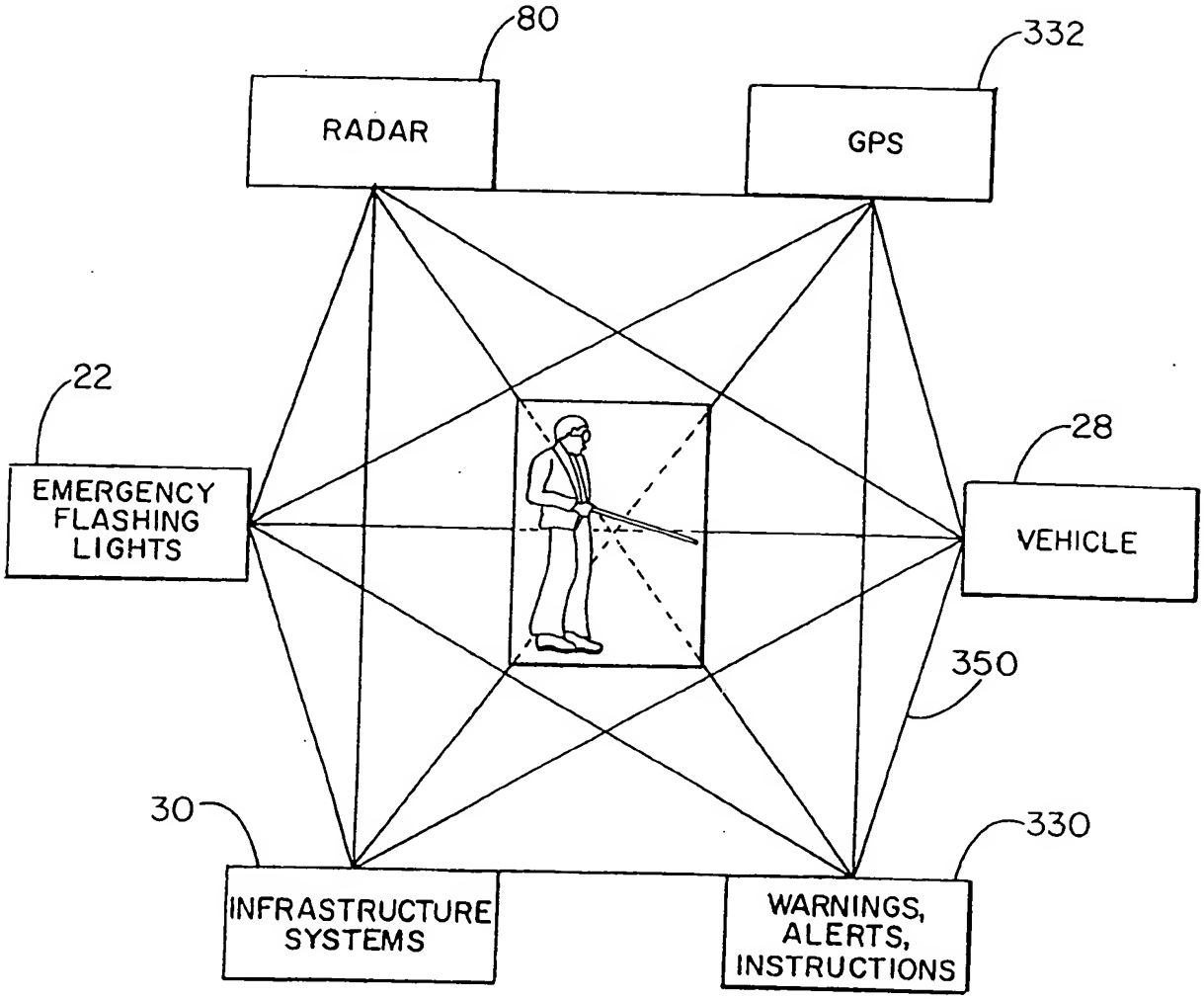


Fig.-14A

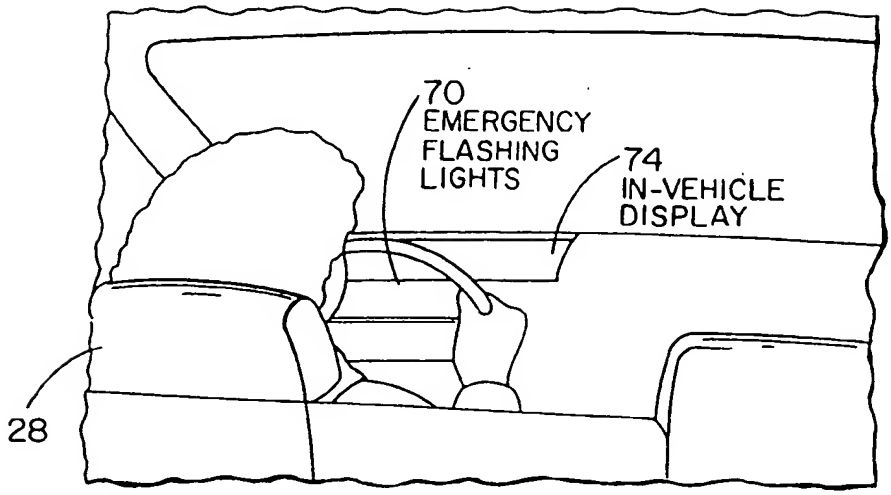


Fig.-14B

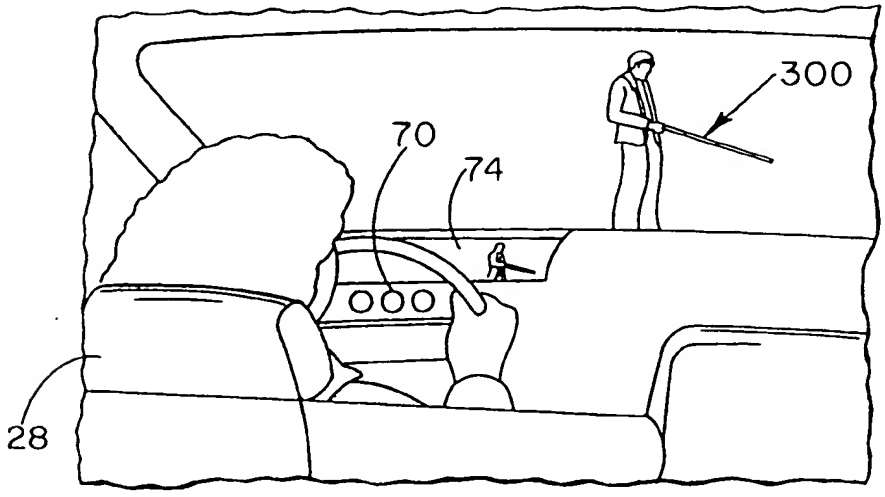


Fig.-15A

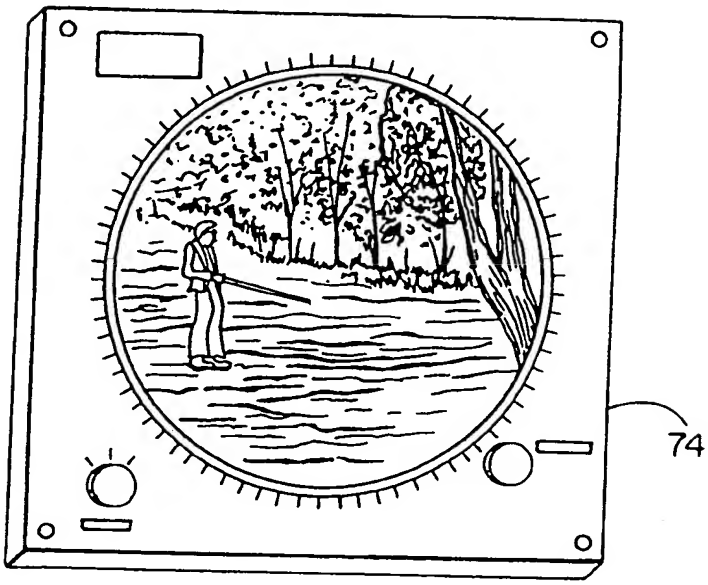


Fig.-15B

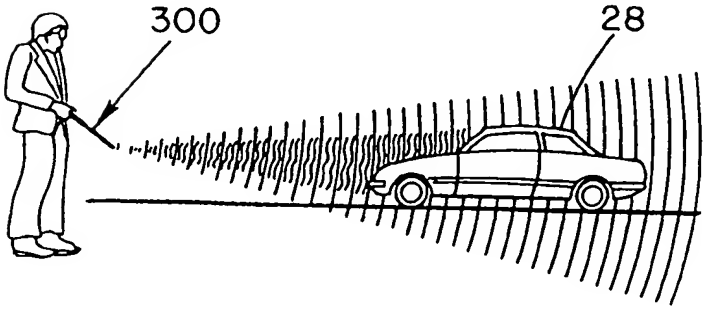


Fig.-16A

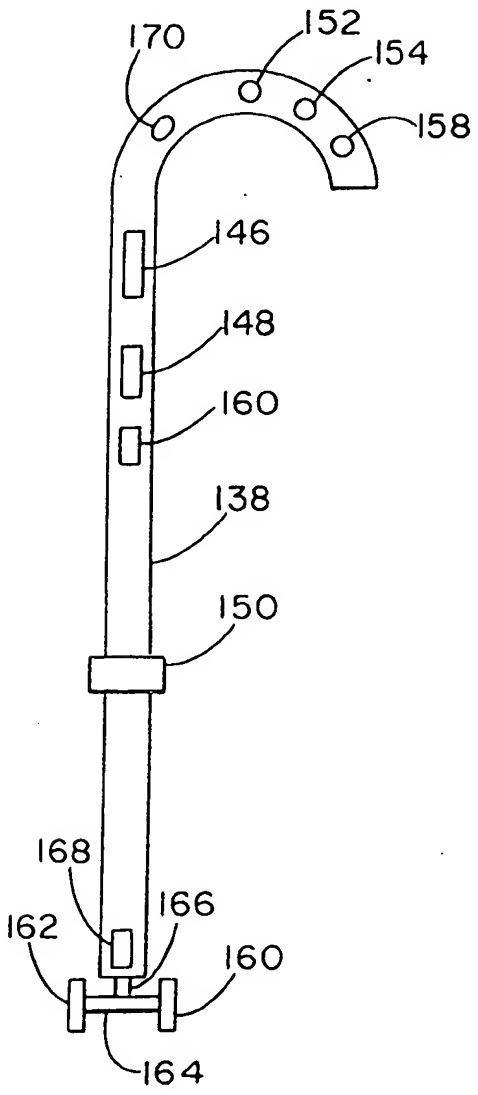


Fig.-16B

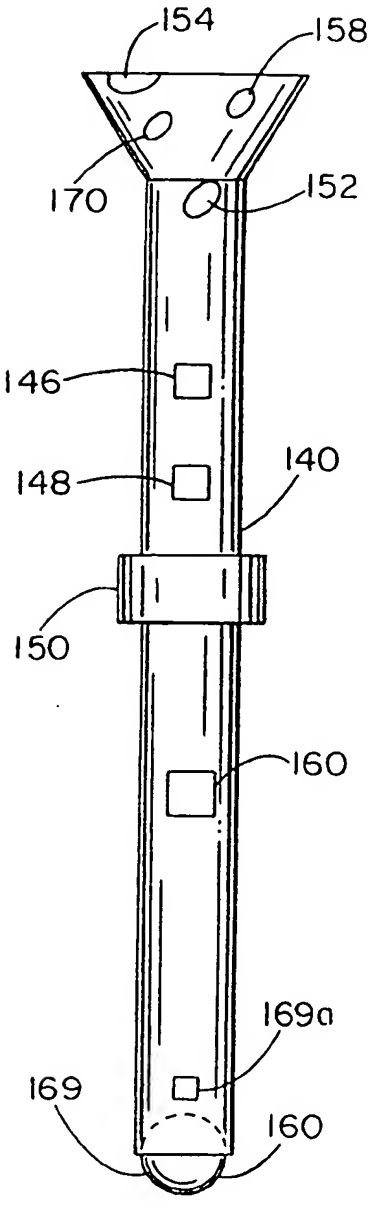


Fig.-17A

ANTISKID SYSTEM

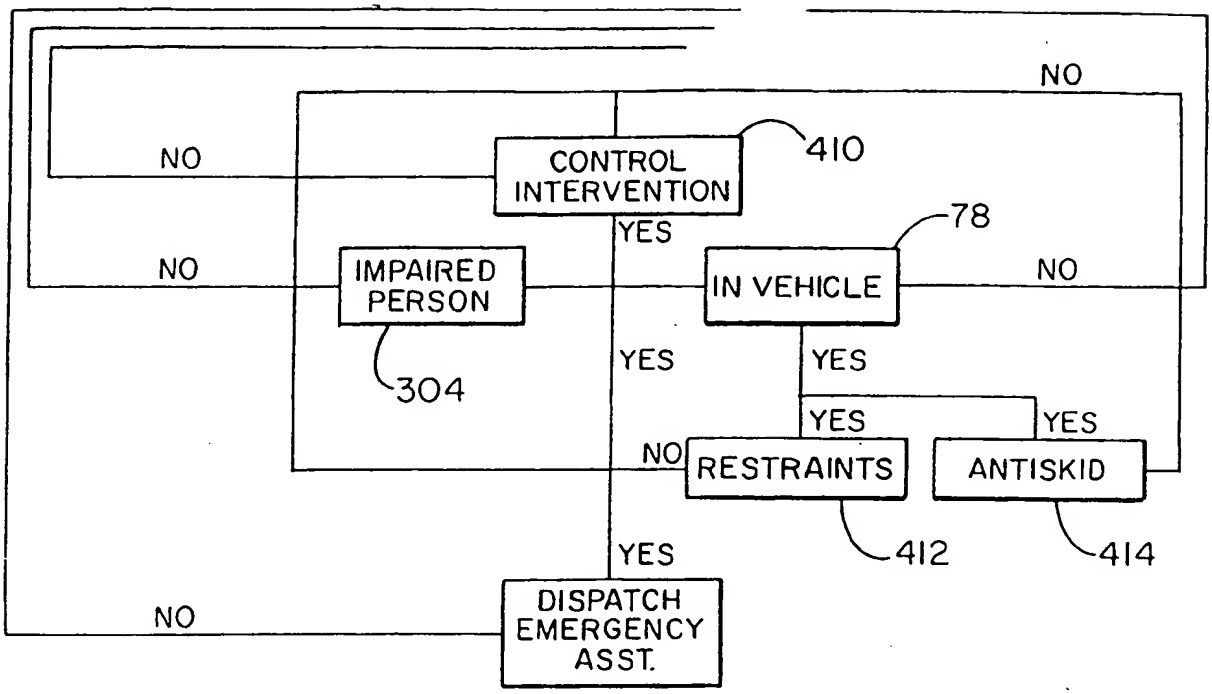


Fig.-17B

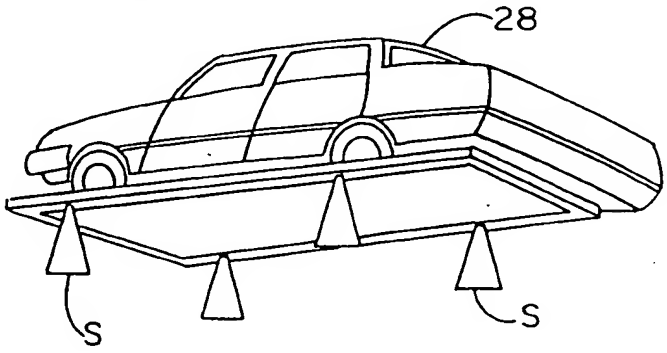
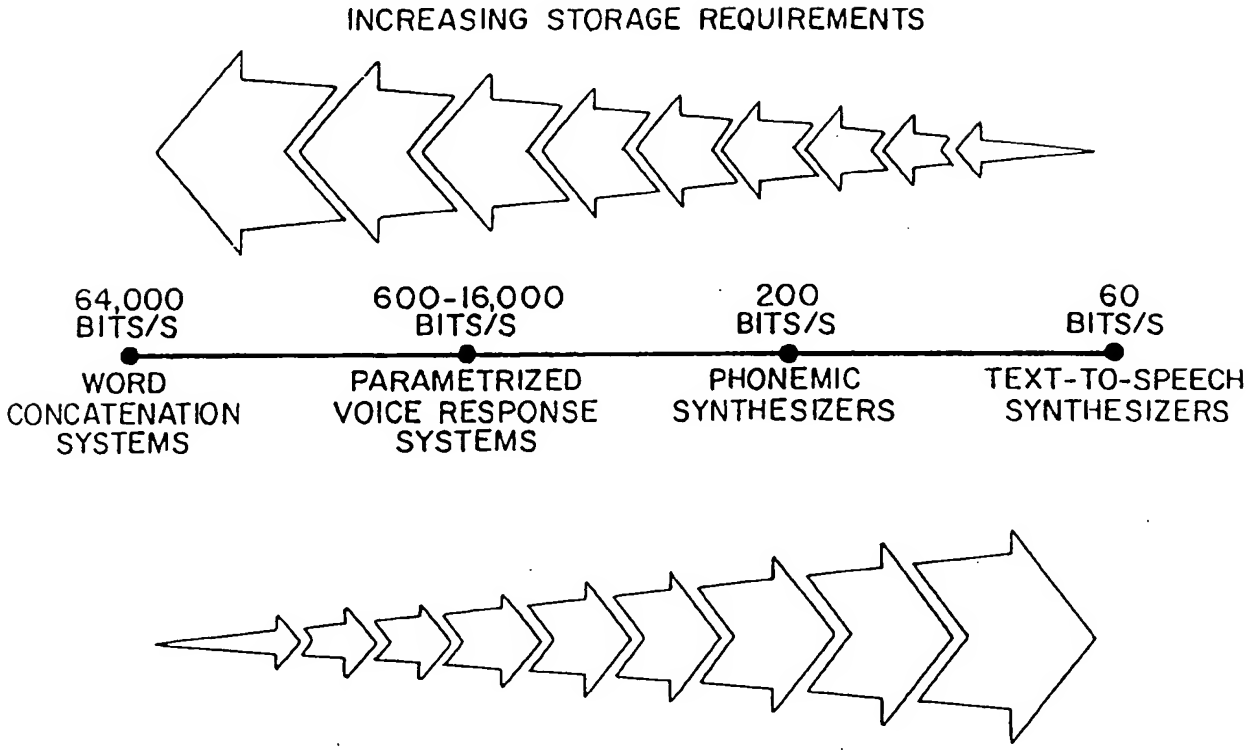


Fig.-18 (PRIOR ART)

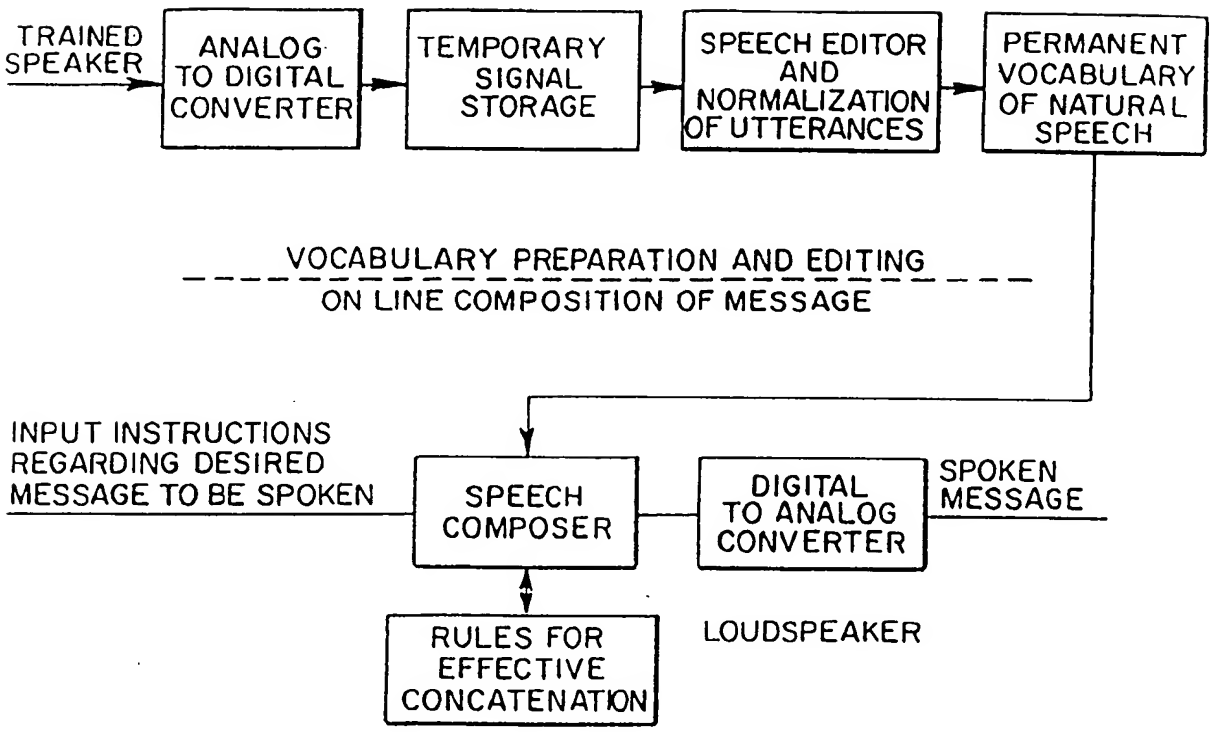
INTERACTIVE VOICE RESPONSE



SPECTRUM OF ALTERNATIVE TYPES OF VOICE RESPONSE SYSTEMS.

Fig.-19A (PRIOR ART)

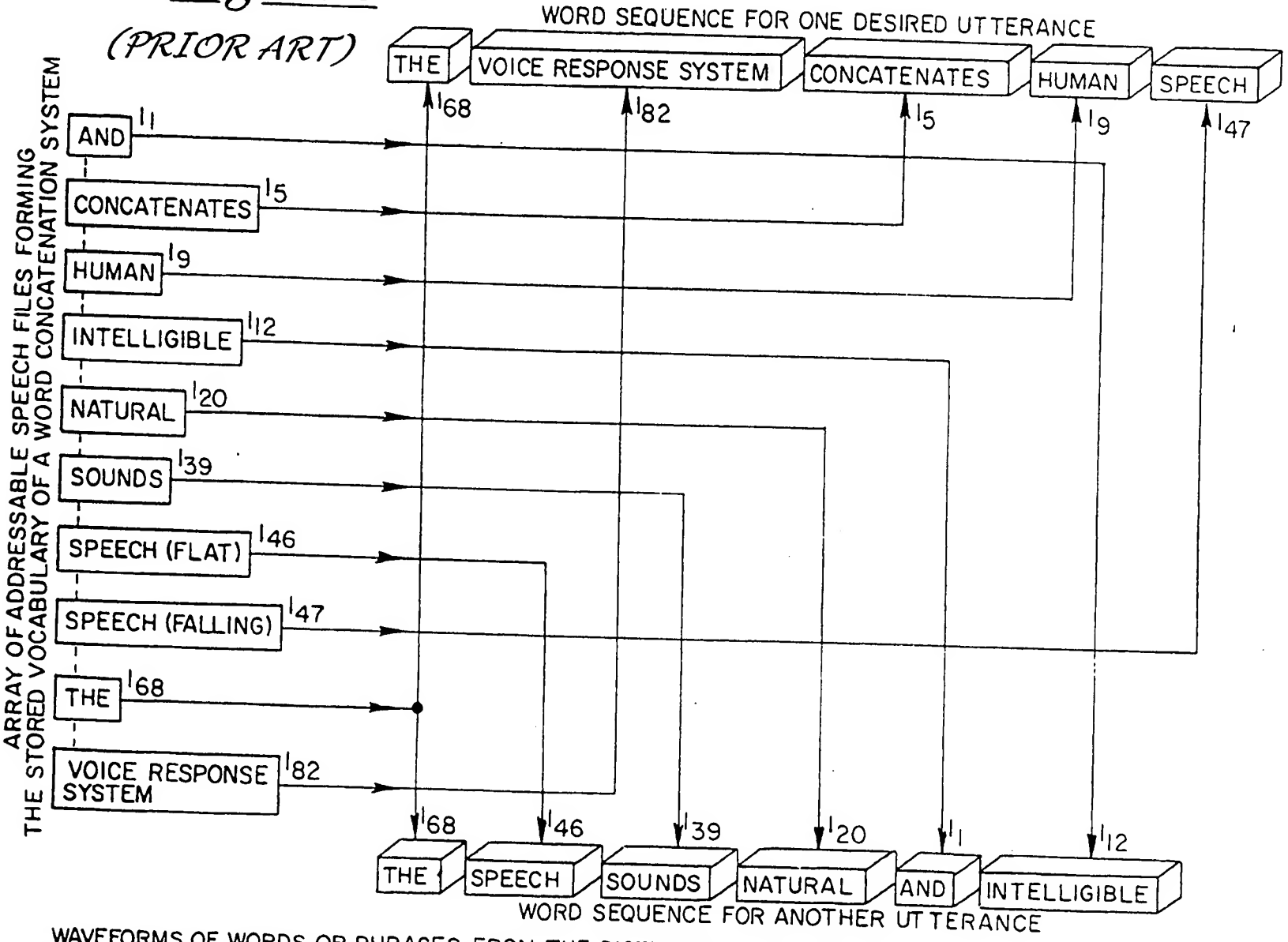
INTERACTIVE VOICE RESPONSE



VOICE RESPONSE SYSTEM WHICH IS BASED UPON CONCATENATION OF WORDS SPOKEN BY A HUMAN.

Fig.-19B

(PRIOR ART)

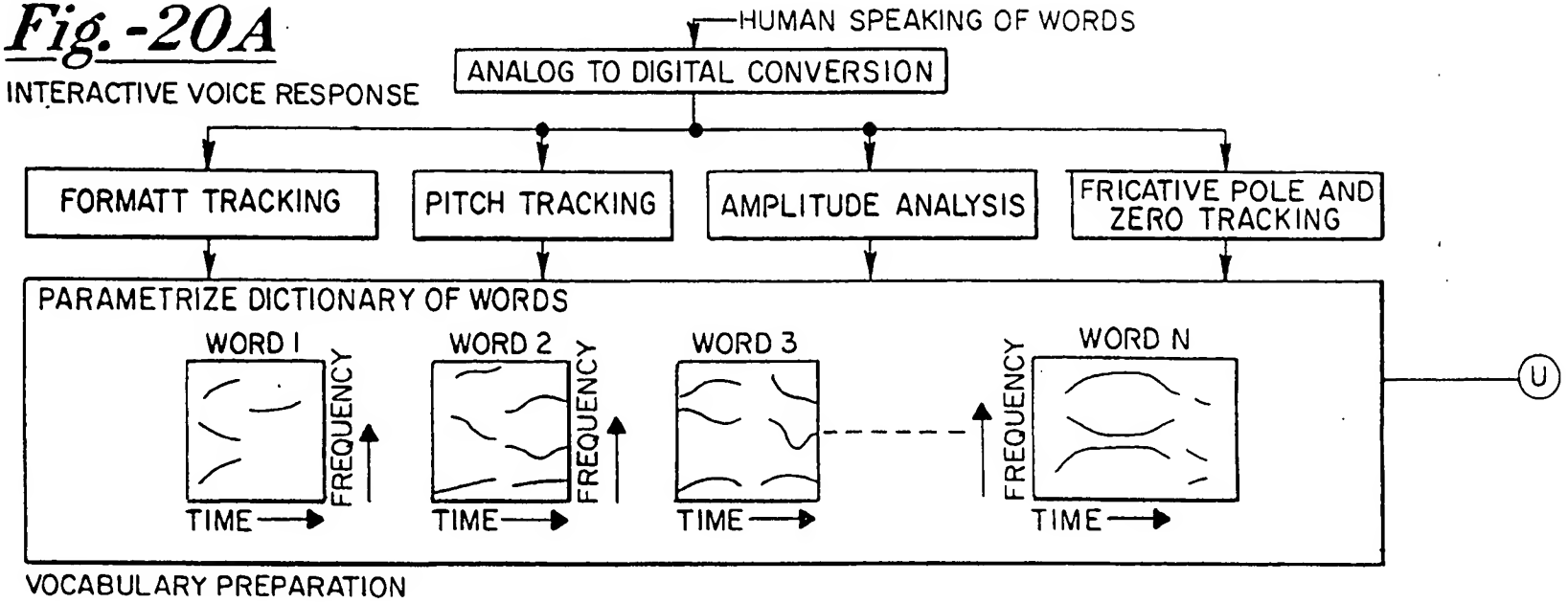


WAVEFORMS OF WORDS OR PHRASES FROM THE DICTIONARY ARE CONNECTED END TO END TO ACHIEVE CONNECTED VOICE OUTPUT FROM A WORD CONCATENATION SYSTEM.

(PRIOR ART)

Fig.-20A

INTERACTIVE VOICE RESPONSE



VOCABULARY PREPARATION

Fig.-20B (PRIOR ART)

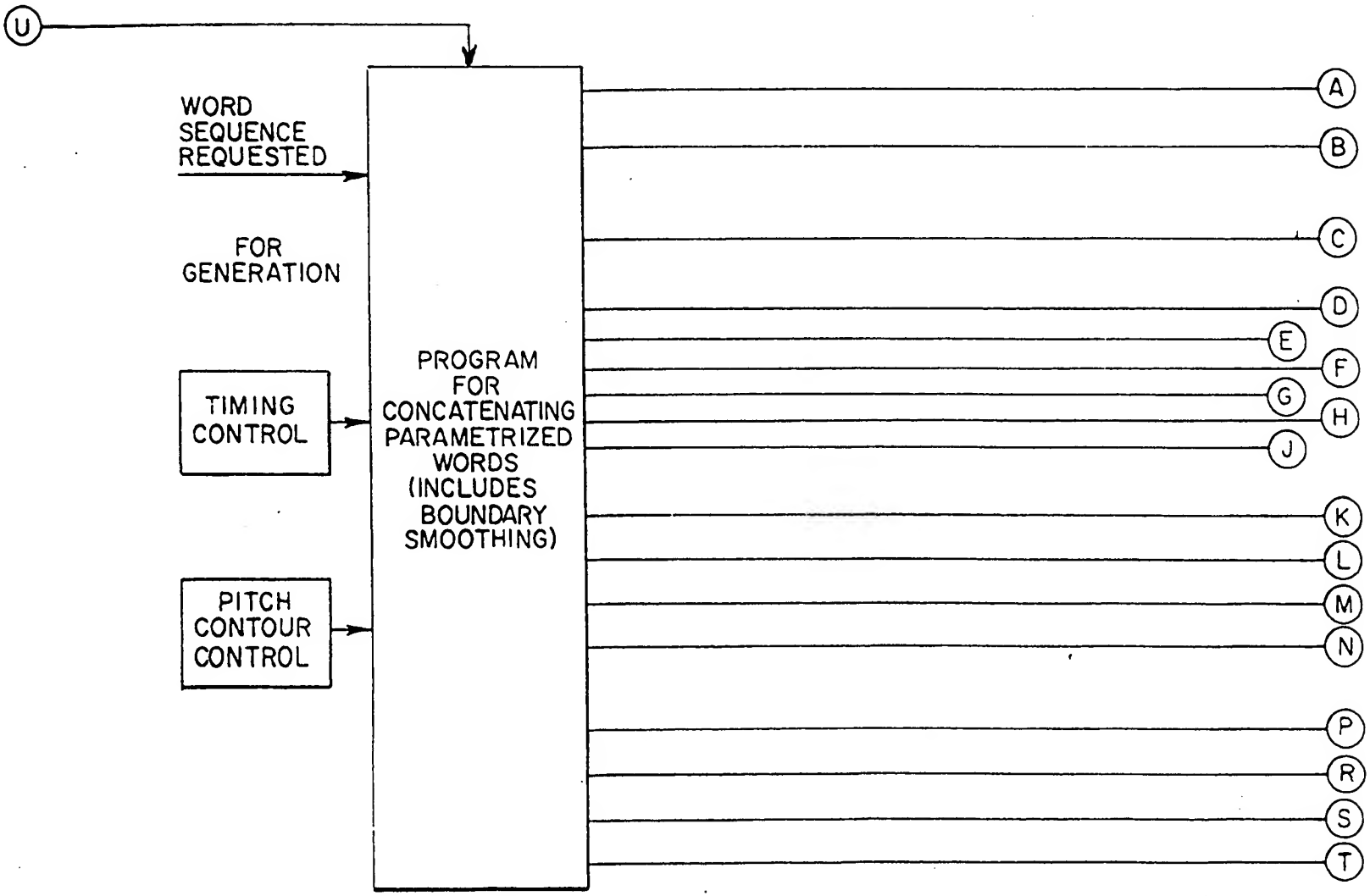


Fig.-20C (PRIOR ART)

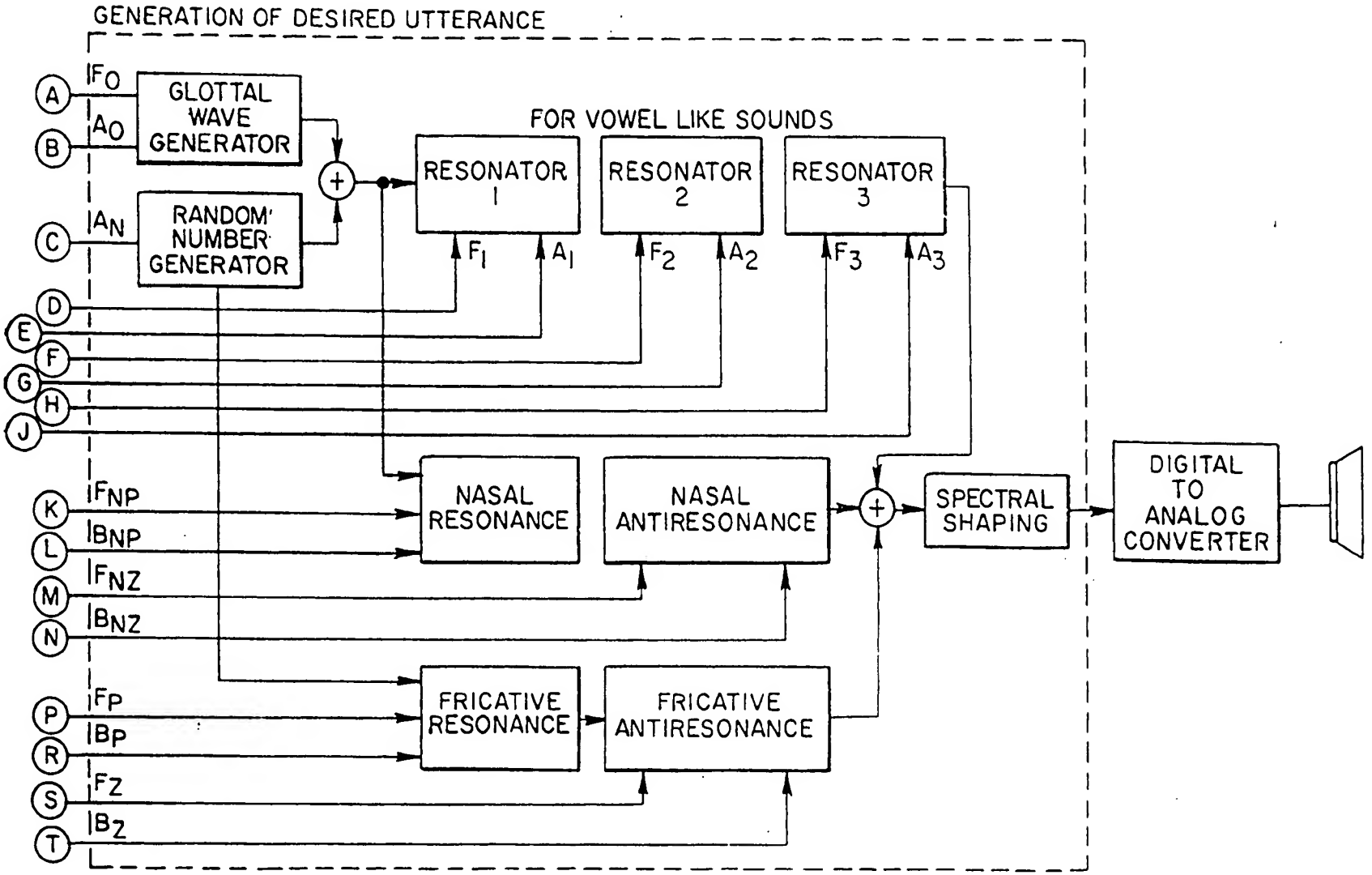
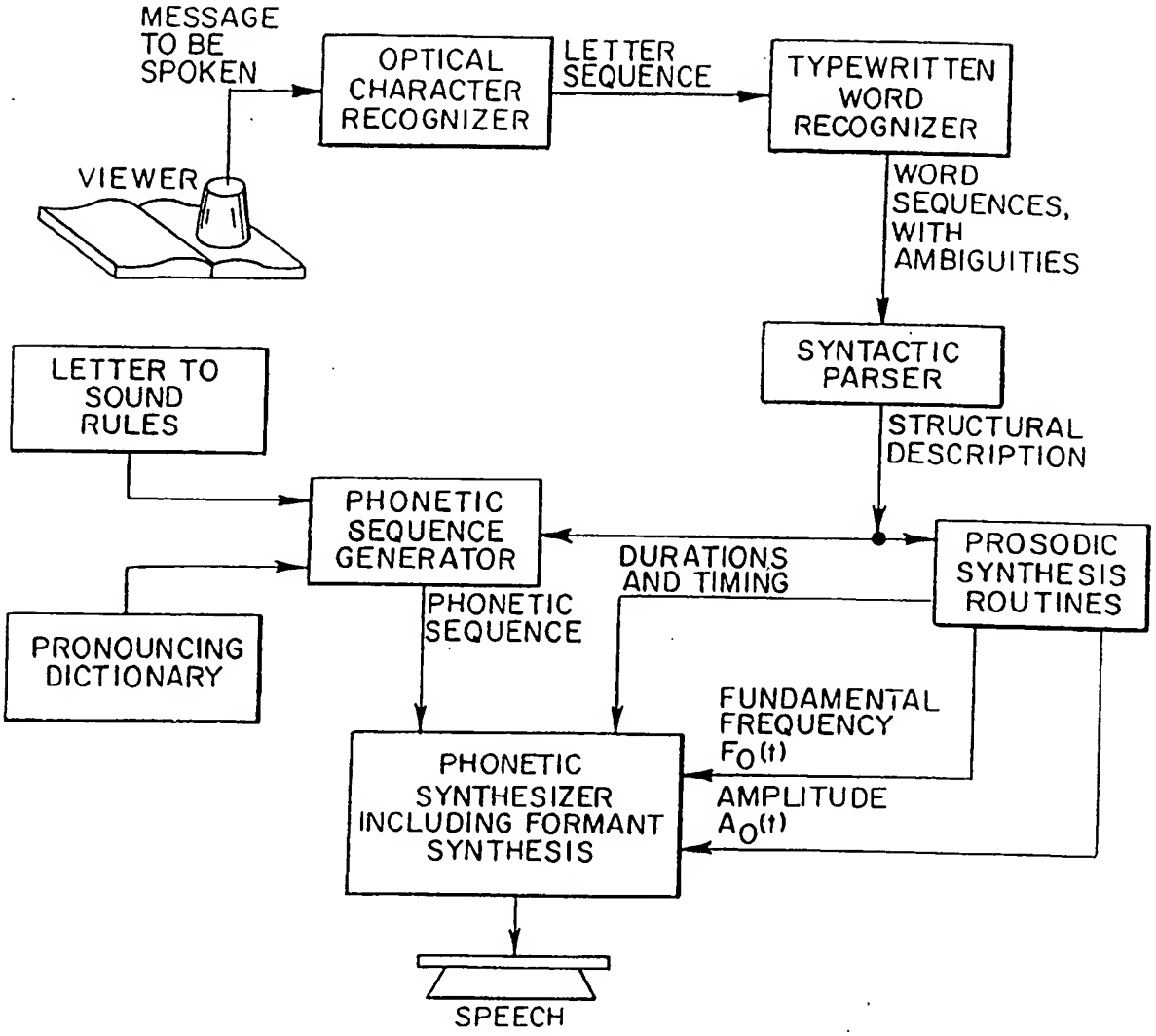


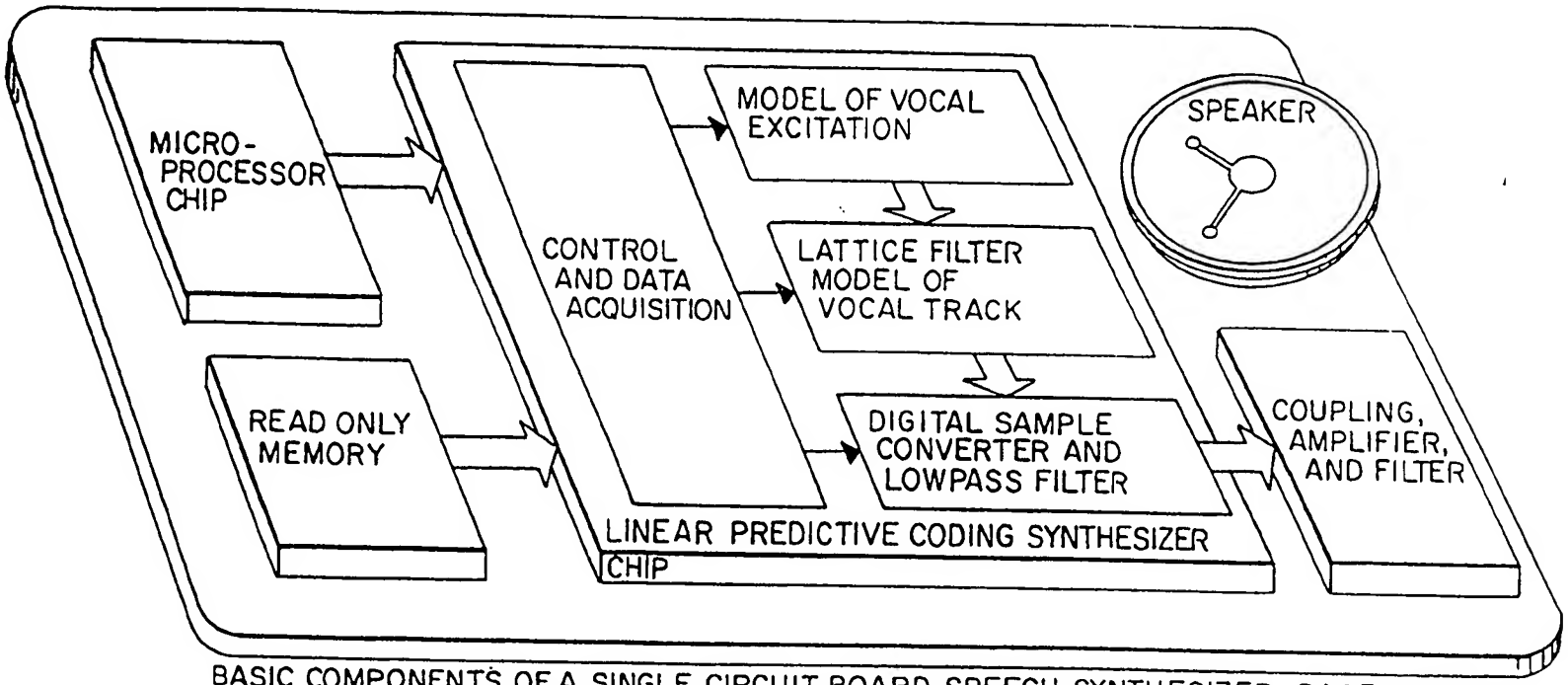
Fig.-21A (PRIOR ART)

INTERACTIVE VOICE RESPONSE



TEXT TO SPEECH SYSTEM FOR GENERATING COMPLEX SENTENCES WITH LARGE VOCABULARIES

Fig.-21B (PRIOR ART)



BASIC COMPONENTS OF A SINGLE CIRCUIT BOARD SPEECH SYNTHESIZER, BASED ON THE LINEAR PREDICTIVE CODING (LPC) METHOD FOR MODELING HUMAN VOCAL PRODUCTION PROCESSES.

Fig.-22

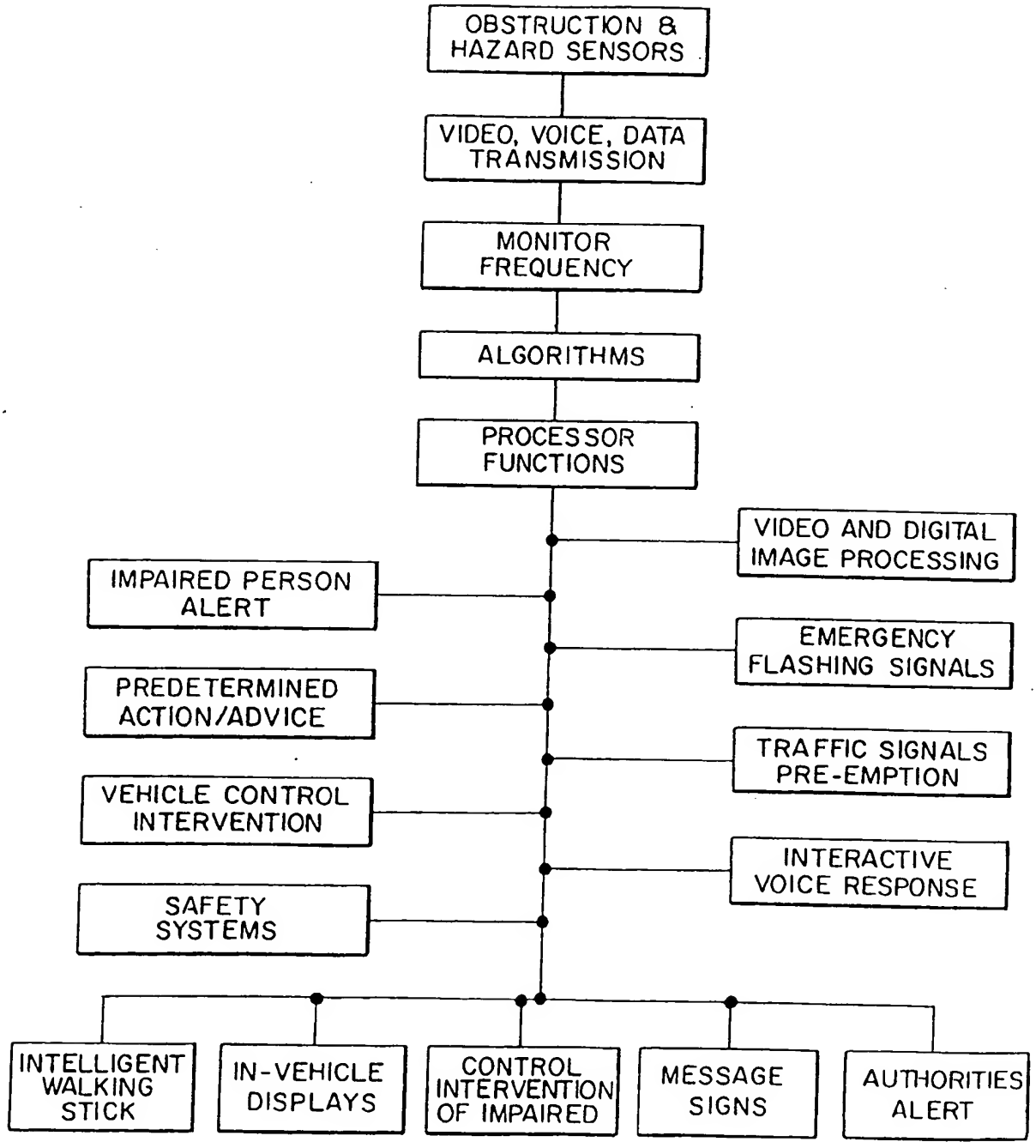

OBSTRUCTION & HAZARD SENSORS
VIDEO, VOICE, DATA TRANSMISSION
MONITOR FREQUENCY
ALGORITHMS
PROCESSOR FUNCTIONS
VIDEO AND DIGITAL IMAGE PROCESSING
IMPAIRED PERSON ALERT
EMERGENCY FLASHING SIGNALS
PREDETERMINED ACTION/ADVICE
TRAFFIC SIGNALS PRE-EMPTION
VEHICLE CONTROL INTERVENTION
INTERACTIVE VOICE RESPONSE
SAFETY SYSTEMS
INTELLIGENT WALKING STICK
IN-VEHICLE DISPLAYS
CONTROL INTERVENTION OF IMPAIRED
MESSAGE SIGNS
AUTHORITIES ALERT

Fig.-23

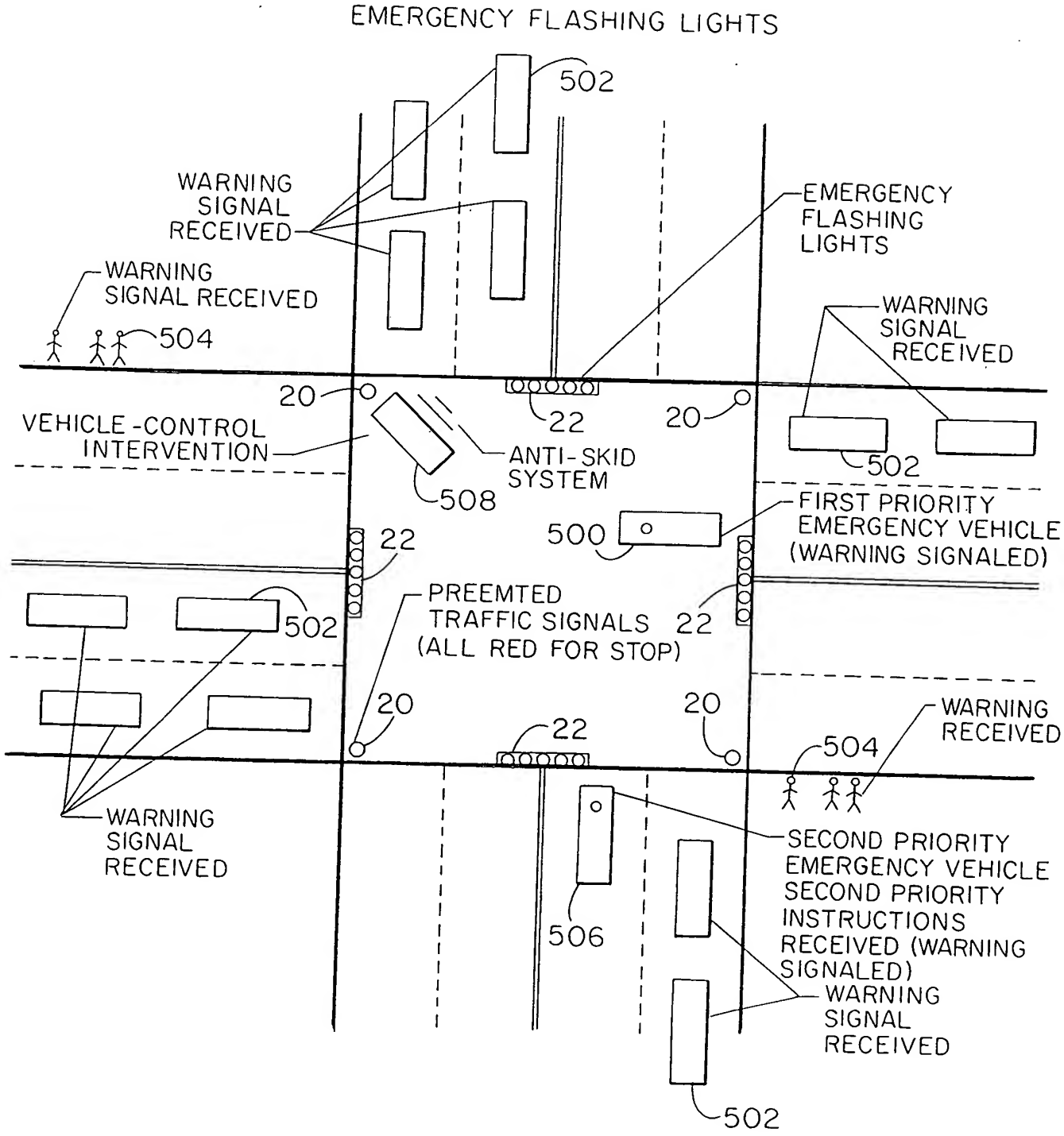

EMERGENCY FLASHING LIGHTS
502
WARNING SIGNAL RECEIVED
EMERGENCY FLASHING LIGHTS
WARNING SIGNAL RECEIVED
504
WARNING SIGNAL RECEIVED
20
22
20
VEHICLE-CONTROL INTERVENTION
ANTI-SKID SYSTEM
508
502
FIRST PRIORITY EMERGENCY VEHICLE (WARNING SIGNALED)
500
22
PREEMTED TRAFFIC SIGNALS (ALL RED FOR STOP)
22
502
20
20
22
WARNING RECEIVED
504
WARNING SIGNAL RECEIVED
SECOND PRIORITY EMERGENCY VEHICLE SECOND PRIORITY INSTRUCTIONS RECEIVED (WARNING SIGNALED)
506
WARNING SIGNAL RECEIVED
502

Fig.-24

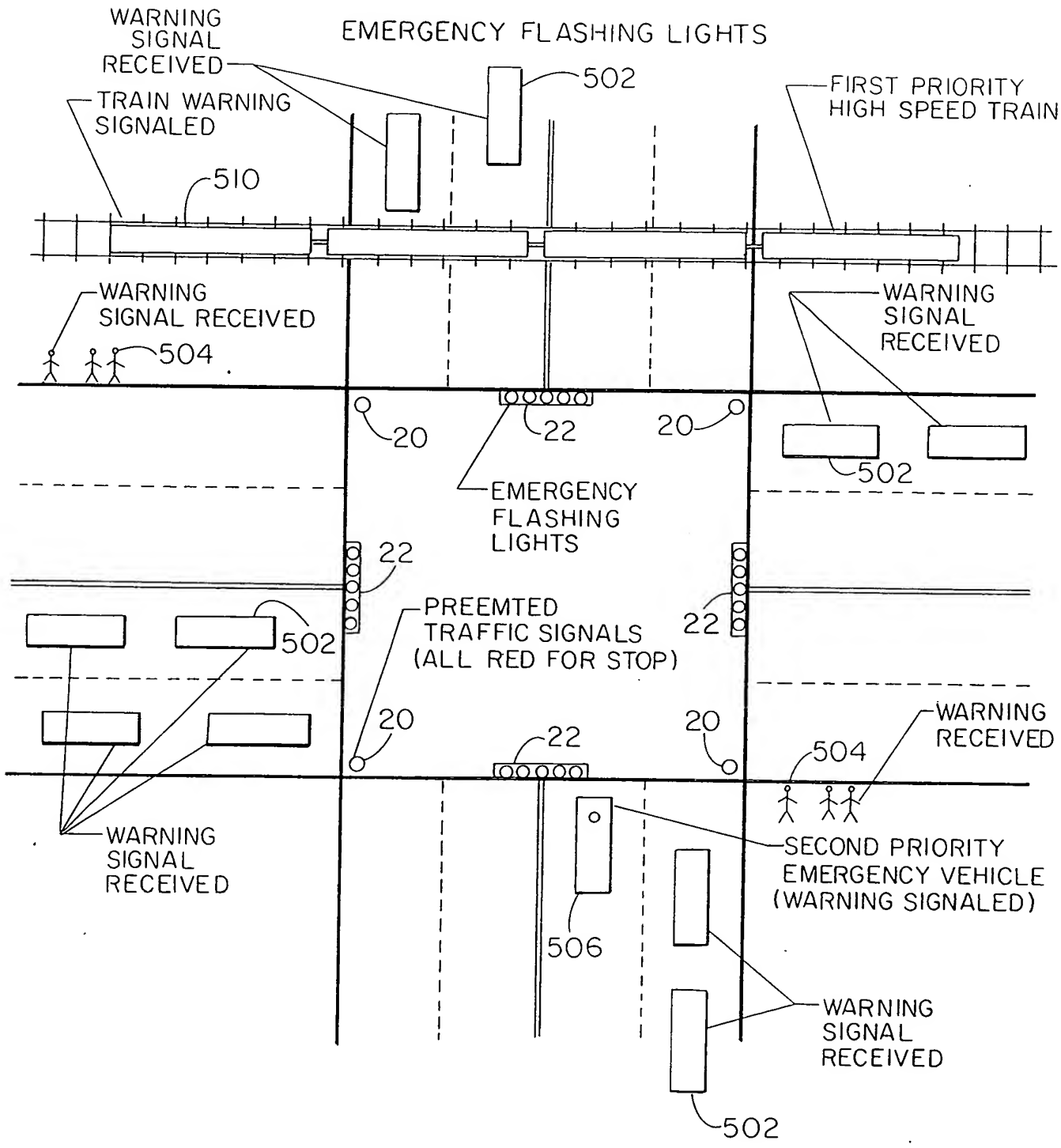

WARNING SIGNAL RECEIVED
EMERGENCY FLASHING LIGHTS
502
TRAIN WARNING SIGNALED
FIRST PRIORITY HIGH SPEED TRAIN
510
WARNING SIGNAL RECEIVED
504
WARNING SIGNAL RECEIVED
20
22
20
502
EMERGENCY FLASHING LIGHTS
22
PREEMTED TRAFFIC SIGNALS (ALL RED FOR STOP)
22
502
20
22
20
504
WARNING RECEIVED
WARNING SIGNAL RECEIVED
SECOND PRIORITY EMERGENCY VEHICLE (WARNING SIGNALED)
506
WARNING SIGNAL RECEIVED
502

Fig. 25

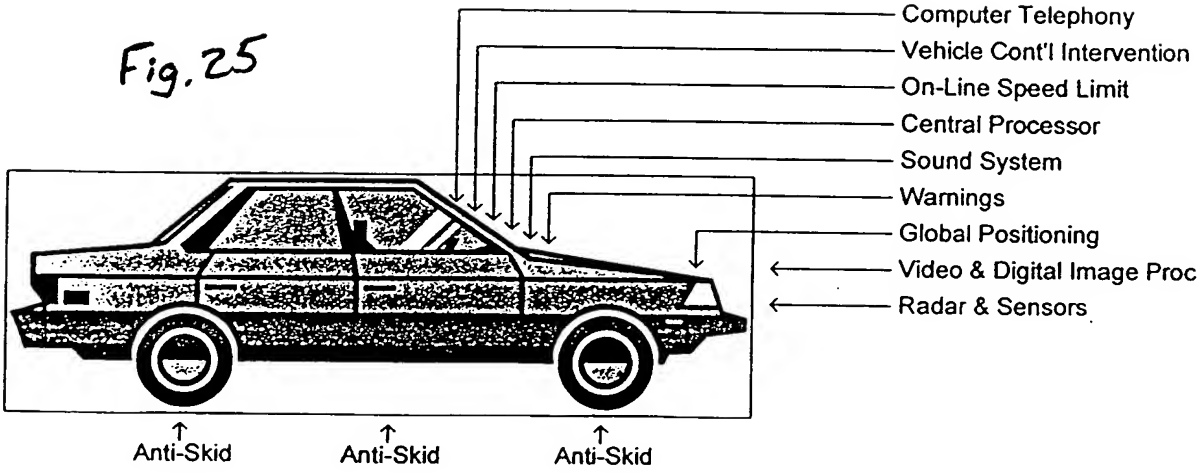
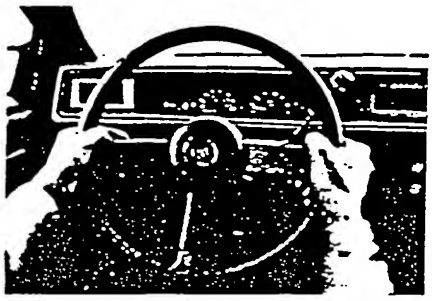
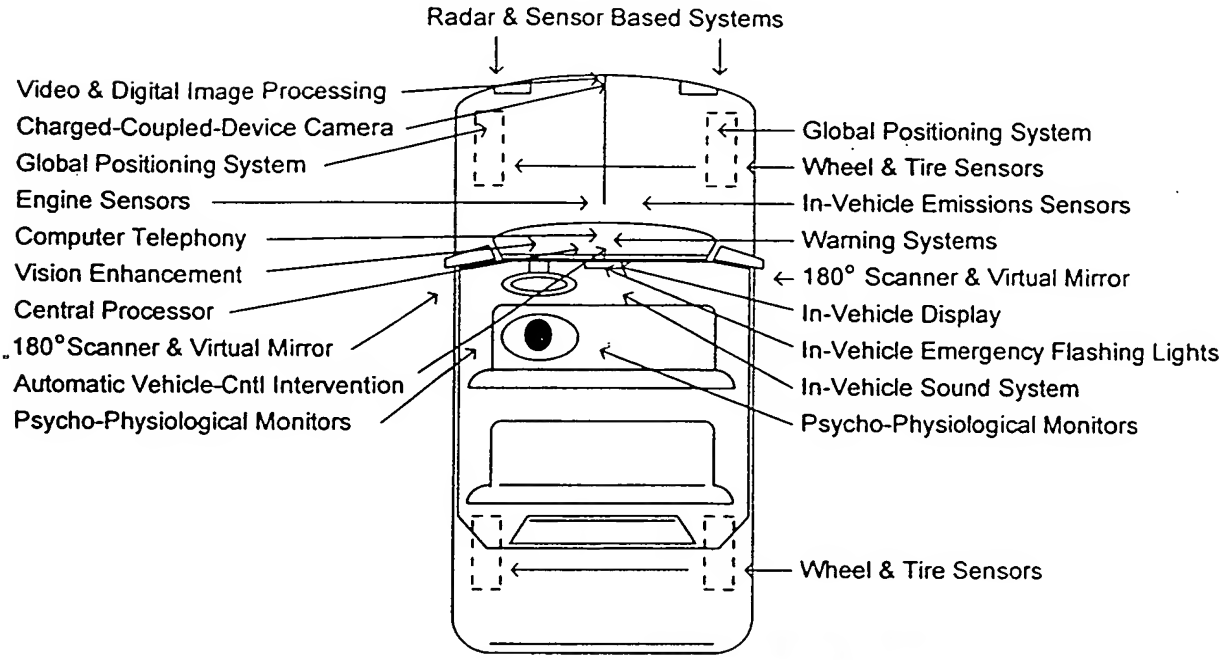

Computer Telephony
Vehicle Cont'l Intervention
On-Line Speed Limit
Central Processor
Sound System
Warnings
Global Positioning
Video & Digital Image Proc
Radar & Sensors
Anti-Skid
Anti-Skid
Anti-Skid

Fig. 26

INTELLIGENT VEHICLE — SAFETY READINESS



← Steering Monitor
← Lane Change Monitor



Braking Monitor →
Throttle Monitor →

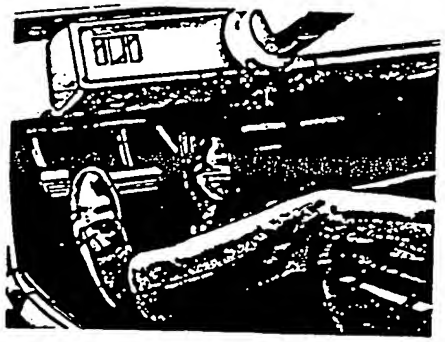
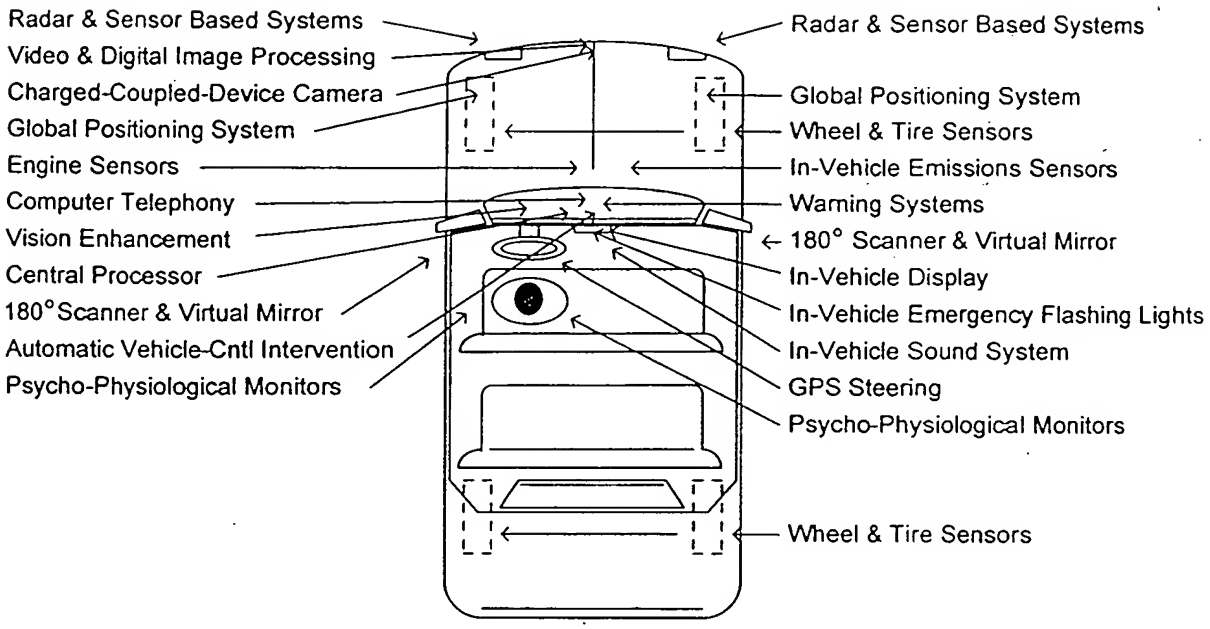


Fig. 27

INTELLIGENT VEHICLE



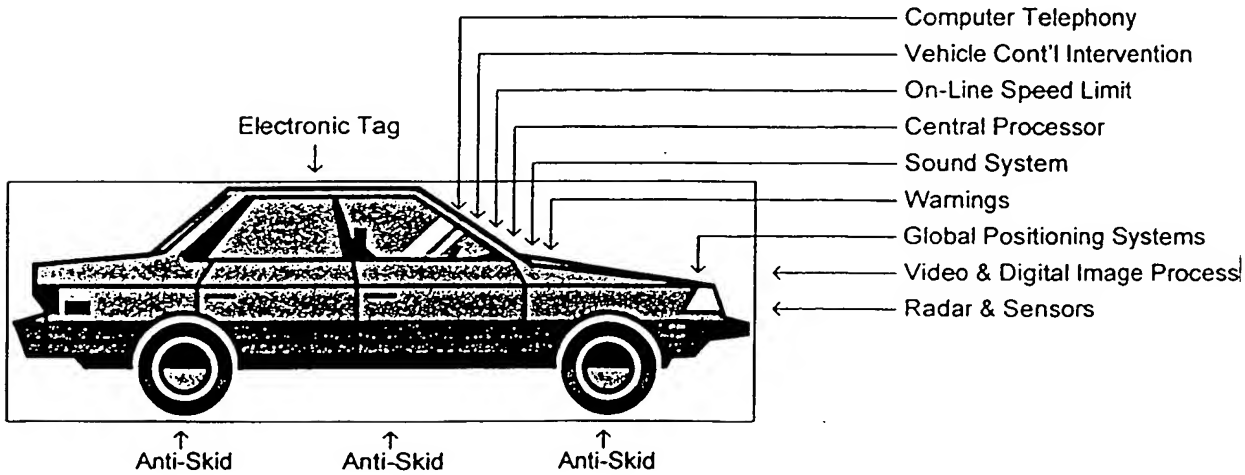
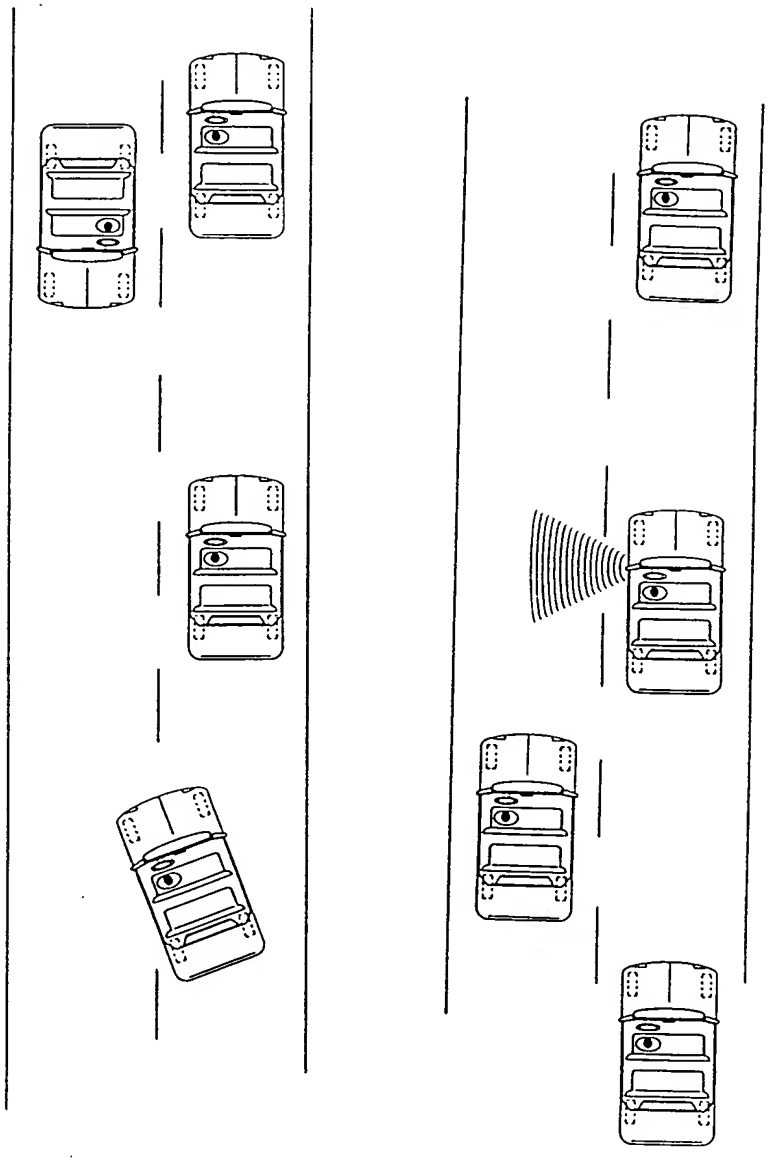


Fig. 28

OPEN ROAD SAFETY



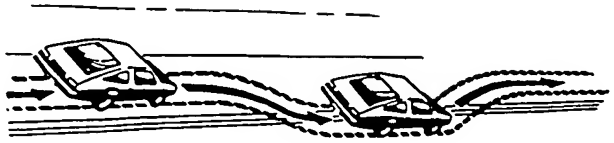


Fig. 29

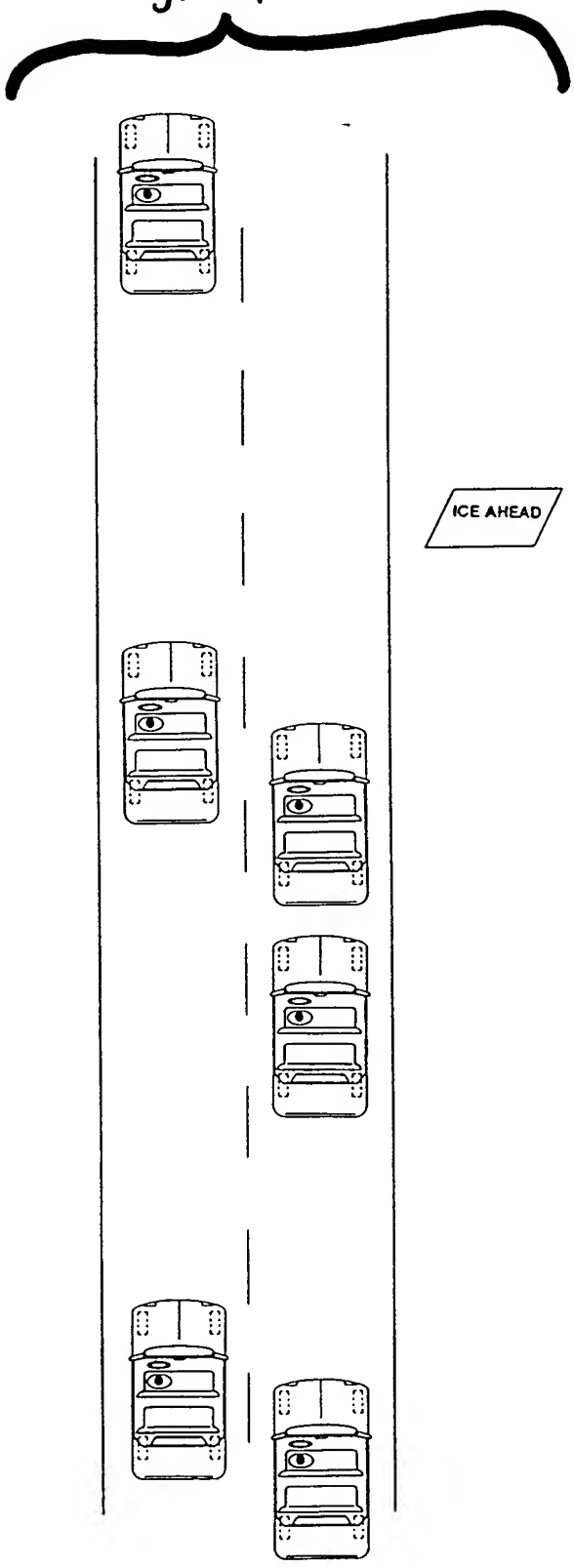
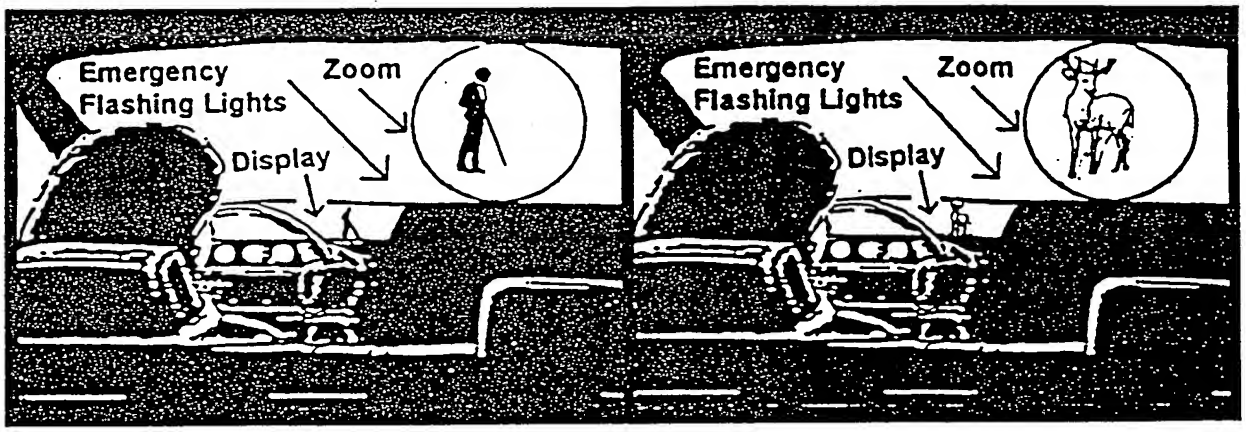


Fig. 30


Emergency
Flashing Lights
Zoom
Display
Emergency
Flashing Lights
Zoom
Display